ERWORLD

Novell pumping up services for enterprise needs

Doubt clouds IBM 'open' plan Wary users question diversity of Information Warehouse additions

PROVO.UTAR

Novell, Inc. is getting ready to introduce multiple phases of its campaign to snare the hearts and information systems budgets of rightstring corporations.

A series of introductions will kick off this month that will map out the network operating system vendor's biueprint for enterprisewide elient/server services and applications on the complementary operating systems of NetWare 4.0 and Unix

The strategic directions, outlined at a briefing here last week, include positioning Net-Ware as a borizontal server and UnixWare as a vertical server, as well as extending and pro-viding an integrated enterprise slant to Net-

These directions are right on target if Novell wants to be taken seriously as an enterprise systems vendor by large IS shops, said Robin McCubbin, network planning analyst at Nation-

al Grocers Co. in Toronto. John Dubiel, manager of planning and techSOMERS N.Y.

IBM's upcoming additions to its Information Warehouse, due in October, will fill in some key gaps - providing a mechanism to get data off the mainframe and onto local-area networks, for example - but some users and analysts question bow open the approach is.

The additions will prove to be a mixed bag from an openness standpoint. For example, the copy management software, which will move data from the mainframe to the PC network will for the time being work only with IBM data bases. Still, at least IBM is acknowledging oustomers' need to move some data to less expen

eive pletforms observers unid. An IBM executive said eventually the soft

-

sides on a used by rei-

ware will work with other vendors' datab engines as well. He gave no time frames. The other major announcement planned for October is the Information Locator — software

designed to help end users figure out what kind of data is in the warehouse so they can ask ap-Although the Locator will include in tion about databases from IRM and other ven-

dors, the Locator will run only under OS/2 and IBM's DBD2 database management system. It will, however, interface with popular analysis tools, according to Chris Arnold, a marketing executive at IBM's Programming Systems buti-

David Beulke, DB2 data admi ager at Solegel, Inc. in Westmont, Ill., said that IBM, page 10

FCC widens local loop options

By Joanie M. Wexier and Gary H. Anthes WASSINGTON, D.C.

A key Federal Communications Comruling on the side of competition could knock down prices and improve services for corpo-

rate telecommunications shoppers. The agency last week mandated that regulated local tele-Job insecurity plagues higher-ups low competitors into

route switched traffic to long-dist works. The action parallels an FCC landmark order last year that opened up this part of the network to competitors seeking to provide leased-line access services [CW, Sept. 21,

The intest interconnection decision, which opens this market segment to "bypass" carri-ers such as MFS Communications Co. and Teleport Communications Group, will benefit small and medium-size firms the most, said Henry Levine, an attorney at Levine, Lagapa and Block FCC, page 12



No prescription for medical privacy

Computerized records: An open book?

By Mitch Betts WASSINGTON D.C.

their contral offices to

he computerized medical records championed by health care reformer will belp doctors improve diagnoses, prevent drug interactions and avoid cossary tests. But they may also destroy what little medical privacy Ameri-cans have unless safeguards are built in at

At a time when insurance companies, re-searchers, police, employers, backers, drug companies, direct marketers, lawyers and reporters are all clamoring to get a peek at ical records, an electronic compilation could set the stage for massive intrusi to private lives, experts said.

"Americans are losing control over personal information contained in their medi-cal files, which makes it more urgent for the istration's health care reform plan to address the privacy last Marc Rotenberg, director of the We uter Profess D.C. office of Com

Privacy, page 14

A national epinion poll shows the publishers "Computers have made it much a





want to unpack from your last job. Turnover due to adfirtnes - is at oord highs. Su-retars like Pro-

Novell, page 8

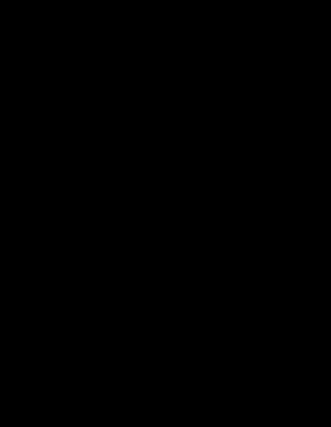
CIO turnover

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Recent events suggest the administrative burdens of your network could grow substantially.



AreYou

Ready?

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ARET And Your Local Phone Company. Technologies For The Real World.



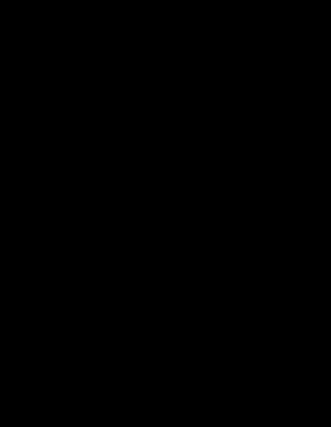


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■ Novell makes the first move in its overall plan to widen data paths through compression and reveals an outline of long-term strategy for integrated petwork and systems management

■ Notes from the floor at MacWorld, Page 12 Culsys and intel team up to develop a scal-

able parallel processing system for high-end commercial use Page 16 Big Three automakers and national laboratories tackle application software for massive-

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Downsizing to PC LANs brings a television network big savings. Page 53

FNTFRPRISE NETWORKING #IRM outsits ATM strategy in context by outlining the near-term fate of its SNA-oriented

The CW GUIDE

■Most people realize too late that they're not prepared for a LAN disaster. Tape backup systems, power supplies and an alternative operations site are only part of what you'll want to bave on band - before the crash. Page 93

■ Buyers' Scorecard: Cheyenne and Platinum score bighest in user satisfaction ratings of top-selling tape backup systems. Page 89

#Firing Line: BusLogie's Chantal RAID software is inexpensive and nonproprietary, users say, but the documentation could use work. Page 101

LARGE SYSTEMS Recent HP price cuts on high-end Unix mini

computers clear room for more powerful models later this year Page 69

APPLICATION DEVELOPMENT ■ IBM is sold on object-oriented programs for the AS/400, but users aren't so sure. Page 77

there's little prospect of improvement. Page 85

IN DEPTH

IS managers turn to former retailers for PC network service and support. Page 105

"How are careers in network ma made? By accident, mostly Page 109

MARKETPLACE ■imaging VARs will provide ex-

tra services - but only if you ask.



Unix, desktop and distributed systems start to pay off for Computer Associates. Page 123

VIEWPOINT AND COMMENTARY

■Patricia Seybold tells the truth about client/ server application development. It's damned hard Page 33 ■IS professionals can help upgrade the U.S.

education system, says Computerworld Publisher Gary Beach Page 33 Charles Babcock talks about how much

tougher supporting widespread mobile comnuting can get and the LAN improvements you should start asking for now. Page 36 Love and network technology adoption go through predictable stages, says Jeffrey Pritz. Right now, we're seeing ATM through a roman-

tic baze. Page 64

Calendar......Page 90 Company Index _____ Page 121 Editorial/Letters to the editor Page 32

Executive Briefing

Even if you aren't worried about escalating CIO turnover rates (page 85), there are other things to keep you up at night ... such as what system improvements might be doing to data security.

The IRS provides a car tale. A U.S. GAO audit suggests abuse of confidential taxpayer data by employees may have been alded by system modern igation efforts. The good news: "Pattern detection" software will be installed. Page 15

the privacy implications of a national medical info network, ex persed to be a feature of President Clinton's health care re plan. Page 1. Even on a smaller scale, distributed datab often seen as antithetical to seen rity. The issue tops most lists of IS concerns about client/server uting. This week, two new ackages (one an upgrade) zed security control. Page 62

lot of reasons, Patricia Serbold says in her column. Page 33. Corant the diffi uity of testing ap ds. There are process, say deve s, but they can't solve prob s of multiple varis

DEC is bowing out of the app centrate software deve

into LAN spec

that it rigs its bonch

DEC downplays its apps

Middleware focus will attempt to provide common user interface such as the Application Control

By Crain Stedman MATHAED MARK

Digital Equipment Corp. has finalized plans for de-emphasizing its own applications and focusing software development on "fram works" for tying together third-

party and custom programs. DEC. which broke up its soft-

ware engineering group as part of the revemp (see chart), said Its software offerings will be made over from all-encompassing singular products into more of a middieware approach. The end rest should provide an architecture and took for blending multiple applications in multivendor client

server environments. The tools are supposed to allow users to put a common user interface on applications from different sources and provide similar methods of structuring and exchanging data among different applications, the company said. The development shift and the accompanying restructuring took effect in the middle of last month

However, DEC last week continued to hold the details of the new strat ogy close to the vest, including its plans for making the frameworks available on Microsoft Corp's Windows NT and DEC's OSF/1 operating systems. The company would not specify which applications are slated to be dropped. Major system-level software and Management System transaction processing monitor will con tinue to be developed, a DEC cooksemomen said However and lysts said they expect that virtually all end-user applications will be jettisoned or sold off. New directions

vendur in the NT market, Hill added. "Long-term, NT is bow they're going to stand or fall," Hill described DEC's new strate-

gy as "high-risk," given the unproves character of NT, but said the decision to give up on the opofication level was "a wise one. given the situation they find them-

ing DEC the dominant middleware

how to view the impending chang-

To what effect?

Groupware (Teambieks) # Office (All-In-1) # (-meil (Madworks)

Document man (DEGimage)

■ Transaction processing (ACMS) ■ Database (Edb)

-CASE tools (Cohesion)

They seem to have learned that it doesn't make sense to go toe-t toe with their lindependent software vendors]," said Neal Hill, senior analyst at Forrester Research, Inc. in Cambridge, Mass pears to be aimed mainly at mak-

selves in" financially Users said they were uncertain

es due to a lack of information

Matt Holdrege, senior network specialist at PacifiCare Health Systems, Inc. in Cypress, Calif. said the framework concept sounds appealing but added that he is concerned about the possible

impact on the development of products such as the DECedi electronic data interchange package The key to thus is to explain it well enough so people understand what it is that's there," noted

George Reid, MIS director at San ford C Bernstein & Co. in New York. He added he has yet to see n clear explanation of how most of the middleware technology on the

William Strecker, vice president of engineering at DEC and the driving force behind the new strategy. was not available for comment last week. The DEC spokeswoman said the company expects to elaborate on its plans "in the short term." hut she would not be more specific.

Government contracts

NSA sacks Sun as rivals question benchmark results

By Carolyn Duffy Marson

The National Security Agency (NSA) has stripped Sun Microsystems, Inc. of a workstation contract worth several hundred million dollars after rival bidders IBM, Hewlett-Packard Co. and Silicon Graphics, Inc. accused Sun of rigging its benchmark results, industry sources confirm

The NSA deal, known as the High-Performance Workststion (HPW) Il contract, is Sun's largest federal contract. Sun has been the near-exclusive supplier of workstations to the NSA, which is believed to have been Sun's largest customer during the last five years. Robert Herwick, managing director of technology re-

search at Humbrecht & Quist, Inc., said that if Sun were to lose the NSA's business, the implications would be serious for the company overall. It is unclear whether Sun will be allowed to participate in

a rebadding of the contract. Neither the NSA nor Sun would Industry sources, however, confirmed that Sun's HPW II

contract was suspended last Monday "IBM is pleased with NSA's action on its protest and pleased that we will have another opportunity to compete on a revised bid," said Sheila Shanihan, n spokeswoman for

IBM's Pederal Systems Division. Tom Steipp, general manager of HP's Federal Computer operation, said, "There was enough substantiation of our concerns and the other protestors' concerns that the procurement was ended "he said.

Time will prove its worth

Sun won the HPW II contract in early June. Industry sources estimated the worth of the five-year contract at anywhere from \$200 million to \$800 million, depending on how well the NSA's hudget fares under the Clinton administration. Sun was the incumbent contractor, having supplied workstations under the NSA's HPW1 contract.

The other three bidders promptly protested Sun's performance on the AIM benchmark, which measures the overall performance of Unix systems. Run by AIM Technology, Inc. in Santa Ciara, Calif., the benchmark is geared toward floating-point-intensive problems.

industry sources alleged that in an attempt to outgun its rivals, Sun used random-access memory on its SPARCstation 10 Model 20 to a greater extent than it should have while running the AIM benchmark. enchmarking expert Andrew Allison said this kind of

scenario does not happen accidentally. But whether a company has "sheated" on a heachmark or merely been "crontive" depends on how clearly the government specified the configuration it wanted.

Steipp said HP's protest also questioned whether Sun hid fully commercial equipment, as was requested in the bld, to carn those high benchmark results

We didn't do anything wrong or illegal," a Sun source said. "We read the RFP and carefully responded. .. We have not been barred or precluded from whatever happens next." Procurement inwyers said the NSA has several options regarding HPW II, including awarding the contract to onno thnother three bidders based on their earlier offerings; clarifying the benchmarks with a modification to the original ation and asking the four bidders to submit another round of best-and-final offers; or starting the procurement .

Marsan is a managing editor at Pederal Computer Work on International Data Group publication.

Ruling reversal frees federal telecom users

By Joanie M. Wexler WASHINGTON D C

The federal government's Pederal Telecommunications System 2000 (PTS-2000) network broke out of technological timbo last week after a federal court reversed a yearold decision to exclude high-speed services from the scope of the 10year telecommunications conistration (GSA) bolds with AT&T and Sprint Corp.

cause of protests by rivals MCI Communications Corp. and WilTel, which were upheld by the GSA Board of Contract Appeals last summer, AT&T and Sprint had on prohibited from providing T3 (45M bit/sec.) transm vices to government agencies un-der the PTS-2000 contract.

MCI and Wiffel had formally objected to an AT&T/GSA plan to modify the contract to include T3 on the grounds that T3 is a new technology rather than an enhancement to existing dedicated

rices, such as T1. This technical interpretation of what constitutes "improving seres," which is allowed under FTS-2000, set a dangerous prece-

dent that could have limited the FTS-2000 net to outmoded technology, government users and ana-

This erroneous interpretati looks the contractor's obligation to improve Dedicated Transmission Service [sic] as a whole, ted the U.S. Court of Appeals for the Pederal Circuit in its deci-

Now, with the ruling reversal,

we've been given back what we always thought we had under FTS-2000, which is technology refreshment " and David A Rittenbender telecommunications branch chief at the U.S. Environmental Protection Agency in Research Triangle

Park, N.C., a user of T3 services. If the GSA had been prevented from providing T3 land other new! services. FTS-2000 would have become a useless contract" - and the EPA would have been stuck without T3 service between its su-

percomputing center and its na tional computer center here, Bit-The decision is "liberating for the planners of PTS-2000," said

Steven A. Taylor, president of Distributed Networking Associates. Inc., a consultancy in Greensboro. N.C. "Now PTS-2000 can grow/to meet the needs of the individual acrocies" rather than forcing agencies to build their own net-

works and miss out on the price officinneies of large-scale volume,

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Mail vendors converge Highlight importance of linking groupware applications

Dy Michael Visand

BANJOSS, CALIF

The continuing push by elect mail suppliers to leverage their ducts as an enabling technol ogy for groupware applications will be very much in evidence at Groupware '83 here

Both Lotus Develest Corp. and dPerfect Corp. ind to showcase separate competing ini-tiatives that will hlight the growing portance of linking 28 spware applica-E-mail transport and

ectory service. The main advan age of tying group-rare to E-mail sysns - rather than

tory services as is done in some d-alone packages — com

mation. That is because the storeand-forward nature of E-mail provides a transport that does not reuire users to be connected permanently as a dedicated net-

Lotus will release Version 1.1 of its Organizer personal informa-

Sign Pring course Sign of Capacit (Sp to come) I Sign out of Part or the Sign of Capacit (Sp to come)

replace the functionality in Profs. which we got in Organizer and CC:Mail. We view these two as a single product," technical advisor Dob Strotton said Before opting for Organ

Stratton said Gulf Canada evaluated Network Schedul er from PowerCore International in San

users. "We wanted something to

Francisco but chose Organizer because it has a filefax interface and is integrated with CC:Mail.

Besides group calendaring and scheduling Stratton said Gulf Canada intends to serve as a beta-test site for Lotus Forms. which will run on top of CC-Mad rather ther

adopt any of the forms packages that are available today. Letus Forms is due in early WordPerfect 1994 anid that week it has been delly ering an add-on forms package.

Ultimately the need to add func tionality to E-mail services will drive providers to add a range of services that have thus far been purchased as stand-alone items (see chart above).

How successful providers of forms and conferencing software are in staving off the E-mail providers will depend on how well they can integrate their software with mail directories using standards such as the Vendor Independent Messaging protocol, noted David Perris, president of Perris Net-

works in San Franc Staff writer Lynda Radose vick contributed to this story.



Postal traffic cops

iak, a systems engineer at

e intest release of Lotus' CC:Mail Windows-

available from Beyond is more appropria pany President Chuck Digate said. cluded in the bundle is software from Mar

ent Software Ltd. that can sort and forward mail to oriate destination when users are out of the

not have the application that created it.

The Microsoft Mail bundle will cost \$995 for a 10 intion license, which is \$300 more than with reon said.

Notes phone

are Microsoft Corp., which bundles scheduling and mail software in Windows for Workgroups, and Beyoud, Inc. in Cambridge, Mass., with its BeyondMail, Beyond has work-flow services and recently d forms software on top of its mail service. Additionally, E-mail vendor On Technology Corp. in poktine, Mass., siso plans to offer blended E-mail and mail-culed scheduling services across

e and in integrated with CC:Mail

tion manager, which for the first

time gives Lotus the ability to pro-

vide group scheduling on CC: Mail.

the distributed services in Word-

Perfect Office 4.0, which offers

Vendors of the imaging applica-ions include Imagery Software.

Inc., PaperClip Imaging Software.

d Watermark Software, Inc.

ne., Simplify Development Corp.

Also competing for mind share

E-mail, calendaring and schedul ing software in the same package

ICW May 17).

WordPerfect will showcase the integration of four imaging appli-

ions that will take advantage of

multiple platforms after merging with Notework Corp. Analysts said they like E-mail s' chances for success. "I think the E-mail providers will be extremely successful. They we very aggressive pricing, can verage suites of applications and re the same mail directories," said Matt Cain, program director at Meta Group, inc. in Westport,

oun. For example, Gulf Canada Re-ources Ltd. in Alberta recently ted to deploy Organizer for 700 into a number of clients with Microsoft Mail, wayperyear.

By Michael Vizard

Corporate Software, Inc. plans to launch an electronie-mail gateway at Groupware '93 this week that will support bidirectional, native format message transfers be-tween Microsoft Corp.'s Microsoft Mail and Lotus Development

Corp.'s Notes mail. Tentatively called the Mail Express, the gateway is intended to resolve incompatibility issues as inted with running Microsoft Mail alongside Notes, the Canton, Mass-based software distribute

and services company said.

Gateway ties Notes to Mail se," said Norman Weizer, president

of Weiger Associates, Inc., a con sultancy in Lexington, Mass.
"Microsoft Mail doesn't have a uge percentage of the market [st Notes sites] yet, but it has enough

tobe a problem," be added. To help simplify managing di-erse Notes and Microsoft Mail Installations, the Corporate Software gateway features a directory nization service that altories to exchange user

The gateway costs \$5,000 per Notes server. Maintenance, which "There's a pretty big need for this. I've run is free for the first 90 days, costs \$700 per gate

RANK 1992	199	91	CON
1	Г	1	CI MOTORS Derroit
2		2	Irving, Texas
3	-	3	FORD MOTOR Dearborn
	-	4	INTL. BUSINESS M
4		5	GENERAL ELECTION
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Bank, CA resolve legal dispute

First Fidelity Bancorp has respect to notware li-censing dispute with Computer Associates Interna-tional, Inc. and agreed to a five-year, flat-fee perpetual license agreement. The MIPS-based license — targeted at mainframe systems software but including a handful of desktop products - permits First Fiing a manust of closure produces a personner at delity to use CA software on any of its computers at any of its sites. Last April, CA filed a isswealt against Piret Pidelity for breach of software liceuse agreesents and misappropriation of trade secrets for CA oftware that was managed for First Fidelity by Elec-posic Data Systems Corp. [CW, May 11, 1982].

Bachman replaces president

achman information Systems, Inc. ancounced at week that Peter Boot, former president of Para nications' software and informati systems group, will replace Arnold Kraft as president and chief executive officer. Boni was previously presi dent of On-Line Software International, Inc. Kraft, is had been Bachman's president and CEO since 88, will remain at Bachman as a consultant.

Panel clears Clipper encryption

A panel of five experts from out de the fe at completed its review of the secret algorithm used in the government's proposed Clipper encryp-tion chip, a controversial method for anteguarding tion canp, a controversal meanor for angular communications while allowing the government to erack them in court-approved wiretaps. The panel said the algorithm is not likely to be breakable by "brute force" trial and error using any supercomput-er available in the next 30 to 40 years. It added that the algorithm must remain classified for national security reasons, the strength of the algorithm against attack does not depend on its secrecy.

EDS widens its customer base Electronic Data Systems Corp. laked two megacon-tracts — one in its traditional mainframe outsourcer tracus — one in its traditional maisfraine outsourcer vein and the other an a "technology partner." The maisframe deal cuils for EOS to take over processing for Nielsen Information Services. In contrast, a \$200 million, 10-year deal with IASD Health Services, which ses Bloc Cross/Blue Shield of Iowa and South ota Blue Cross, calls for EDS to re-engineer IASD's

ellon sells outsourcing units to Fisery

Mellon Bank Corp. took one giant step toward mak-ing its long-expected exit from the outsourcing business last week when it sold two business units to Milased Pisers, Inc. for \$70 militon. The sale of Mellon's Financial Institution Outsourcing and Data-Link Systems, Inc. operations removes Mellon from the banking outsourcing business. Mellon retains what it calls its Commercial Outsourcing unit, which provides data processing to non-banking customers.

SHORT TAKES The Society for Information Manag ment's software licensing task force will spons it between users and software vendors on Sept. 22 in Washington, D.C., which will coincide with the society annual conference.... Monanto Co, has be-gun installing a multisite document imaging system pas measure a mattante occument entaglia quiesti from Plience Corp. The inagingi application will be deployed in more than 30 of Momento's U.S. manu-neturing and technical sites. ... IBM's Adultar storage vanisors introduced its Distributed Storage Manager software, a way to back up data from different vens' PCs and local-area networks onto BM main-

More news shorts, page 16

App delivery goes electronic

BOULDER, COLO

The move toward widespread adoption of electronic software stribution received a major shot in the arm last week following IBM's announcement that it will bundle a compact disc containing a catalog of independent software ne with its loss, and Am-

hes line of PCs At the same time, Gateway 2000, Inc. in North Sloux City, S.D., said it will distribute a free CD with 33 Microsoft Corp. applications to 25,000 Gateway customers who ai-

ready have CD drives installed. Both programs, which are based on technology from InfoNow Corp., located here, will allow users to browse for a package on a CD-ROM installed on a local server. They can then deploy that software by requesting an electronic key to be sent over a telephone line that unlocks the software on the CD. For information systems direc-

tors, the advent of CD-based soft

ated with sequiring PC softwere installation

For example, Meta Group, Inc. in Westport, Conn., contends that a ness with 1,000 PCs will spend about \$50,000 annually for the distribution of one bug fix, two application upgrades and one open ing system upgrade. That estimate is based on a labor cost of \$40 per hoor with an estimate of 20 minntes per PC upgrade.

"I know of some sites who wen't huy some packages because it's just too difficult and expensive to install," said Carter J. Luscher, a program director at Garte Group, Inc. in Stamford, Conn.

However, Luscher noted that the industry is just now coming to grips with the concept of electron ic software distribution. 'We're just starting the journey. Ri sow, we're about two steps from the starting line," be said. One of the key technologic challenges that still has to be over-

ic delivery vehicles do not have the tity to determine what types of software and hardware are installed at a user's desktop. So making sure that systems are ourtly balanced still remains a la-

or intensive process.

In addition, the licensing and selecing technology that would allow IS directors to keep track of tware use is also in its infancy. But as these technologies ma-ture, with IBM, Microsoft and Novell, inc. all working on their own stations, industry ann rsis say the role of value-added rectly from vendors in greater

The smart [VARs] are saying that software has a limited future. rate Software are focusing on val-ue-added services," Luscher said. In fact, VARs are expected to begin noing CD technology to start packaging applications aimed at specific vertical markets.

IBM. Dell offerings have low-end emphasis

By Michael Fitzgeraid

RM and Deli Computer Corp. both went after cost-conscious buyers with vigor last week, introducing new systems with aggressive price noints. Users, confronted by a general onslaught of technology, found it hard to generate much en thusiasm for the new products.

IRM unveiled Ambra Computer Corp., a U.S. company with the same name as an IBM subsidiary in Europe but with a completely different set of products and marketing approach than its European consin, which was designed to target clone makers. Instead, Ambra U.S.A. aims at Gateway 2000, Inc., the North Sioux City, S.D., king of the mail-order hill.

Dell, meszwhile, west after Compaq Compoter Corp., unlenshing two product lines; it also took a otshot at Gateway with a new high-end model for its low-end esion line Analysts said IBM needed to cre-

ate Ambra as a separate box to give itself credibility with buyers who like Gateway. They termed IBM's current efforts in the directmail market "half-bearted." "IBM perceives, and acce

so, that people associate a premi-um with the IBM name, so [Ambra] says they don't have that prem

um," said William Abiondi, an an styst at BIS Strategic Decisions in

Norscell Mass. Ambre features IBM's first agressive push to use Intel Corp.'s Penting chip and marks the first time an IBM entity will use the Extended Industry Standard Architecture bus.

Ambra's high-end product is the TP662E/VL, which uses dual 60costs \$6.559 for a box with 16M bytes of random-access memory and a 540M-byte hard drive. The line starts at \$809 for a 486SLC2 based media-less box

Color offerings Ambra's product family also in-

cludes two color notebooks: a dual-scan passive-matrix model with a 120M-byte hard drive that costs \$2,449; and a thin-film transistor active-matrix unit priced at \$5,449 with the same configura

Ambra corploys roughly 60 peopie and bas outsourced prod tion and telemarketing.

Dell, meanwhile, unveiled two lines, OptiPiex and NetPiex, and beeled up its low-end Dimen line. The three lines reflect a market study designed to link Dell's product moves to one of five euemer types: those on corporate cal environments; those at small and medium-size companies who want bundled offerings; and power

OptiPlex serves effectively as a cement for the L and M prodber. The machine bas a base price of \$1,300 and uses processors ranging from a 25-MHz 486SX to a SS/66-MHz 495DX. A high-end OptiPlex with 6M bytes of RAM and a 450M-byte hard drive will cost

NetPlex is targeted at Compaq's ProLinea low-end line and comes with a preinstalled network adaptor card. Its base price is \$1,099 The new Dell Dimension XPS fan ily targets Gateway with a 465V model that has 16M bytes of RAM. a 450M-byte hard drive, a Diamond Viper video card and a Creal Labs, Inc. Sound Blaster for

One potential customer for both Ambra and Deli summed up the differences in perception that each

"Amhra sounds OK, but we'll see: we're more interested in ValuePoints. As for the new Dells, they seem well-engineered, if not terri hly revolutionary, and we're inter ested in them," said John Woods, PC systems specialist at Chevron Information Technology Co., Chevron USA, Inc.'s information sys tems unit in San Ramon, Calif.

Chevron buys PCs from a mui tude of vendors, Deli and Gateway prominent among them.

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COSE attacks net administration

a The COSE alliance of leading Unix vendors hopes within about six months to equip its common desktop environment with systems administration tools similar to what Microsoft Corp. provides for its Windows and Windows NT

The group is working on both a standardized frumework and services for administering distributed Unix systems with the same same that Microsoft claims users will be able to administer NT via Microsoft's Hers, said Larry Robinson, an OpenView prod marketing manager at Hewiett-Packard Co. and a participant in the COSE systems management group. The utilities will be included in the vario

your, 130 haunes was vendors supply.
Such a development is key to the Common Operating System Environment (COSE) consortiu ctium's goal of ding a standardized Unix platform that can win out over NT as the centerpiece of corporate users' client/server strategies, according to Judith Hurwitz, president of Hur-witz Consulting Group in Newton, Mass.

However, some analysts said they believe some of COSE's working groups, including the one on systems management, will not achieve conscurus and may "fade away" beca radors will not be able to reach agreement on standards. Neal Hill, a senior analyst at Forrester Research, Inc.,

takes a different view. "COSE is,a way to arbitrate differ-suces quickly Because of the delay of [OSF's] DME, my sus-pleton is that what IBM and HP expect to do is to take [IBM's] person is that wast inso and are expected on on and time in settlem and [HPs] OpenView, mix them up together and throw them on the table. That would produce a widely sup-ported system management specification that works and that abready has tangible products based on parts of it."

ieed, the ability to manage distributed client/server sys-ns with the same coordinated case that a mainframe en-onment provides is a top priority for many downsizing proprations. "The tools evallable today for managing mis-

sion-critical applications" on distributed systems "are woefully inadequate," said David Sheppard, chief executive of ficer at Pieet Services Corp. in Providence, R.L.
COSE, which was formed earlier this year

rmed earlier this year by HP, IBM, Unix System Laboratories, Inc., Sun Microsystems, Inc. and The Sente Cruz Operation, recently released the first version of a common Unix-based desktop environment that aims to provide users with a common look and feel and proing eqvironment across the various vendors' flavors of Unix. Working specifications for the environment are due

out by year's end, with products likely to appear on said.

The COSE group hopes to do Microsoft one bet ter by enabling Unix systems to manage a variety of desktop environments, Robinson said. Herm was designed to administer Microsoft's own Win-dows and NT systems

A more long-term and far more amb eet for the group is to come up with a common framework for managing distributed, beterogeneous elient/server systerms based on COSE. Robinson said. Such a framework is a high priority for companies such as Fleet, which needs a way to integrate the "various, fragmented tools" that wen-

dors are bringing out, Sheppard said. The bank now has Unix and is probably going to implement NT, "so probably no one vendor will solve" its system administration needs be added. The COSE group is evaluating components of the Dis ated Management Environment (DME) for potential inclusion in its specifications, Robinson said. However, the group

has apparently decided to come up with its own systems administration standard because the Open Software Foundation (OSF) is taking so long to make DME into a viable product, Hurwitz said.

The group is likely to adopt an object-oriented fran based on the Object Management Group's Common Object Request Broker Architecture (CORBA) as a way to intere neet managing and managed systems, Morrison said. The OSF has announced plans to incorporate CORBA into DME. COSE also plans to develop a set of services that will run

on the framework

made up of IBM links hubs, routers, netwo

management, client

pursuant advention

and support.

Novell. Stac tighten ties

By Michael Fitzgerald

well. Inc. last week said it will build compr sion technology into all its future operating systems, creating the promise of wideped data

Novell's first step down that road was a deal to integrate Stac Electronics, Inc.'s Stacker ssion software into Novell DOS 7.0. As part of the deal, the two companies will work gether to build San Jose, Calif.-based Stac's saion algorithm into Novell's Not-Ware and UnixWare system software, but no

target dates were announced.

Under the nonexclusive licensing arrangement, the two companies plan to develop methods to give users double the storage on their coisting machines and as much as double the data path across their networks

Decompression drawbacks
White Novell aircady has built compression enpabilities into NetWare 4.0, that compression roach is oriented toward archiving and does not allow for dynamic decompression of files, according to Stac officials

"What we announced was the first piece, the client side. The two remaining pieces are storage on the server, using our standardized algorithm, and then the third piece, which doesn't yet exist, is compression over the wire," said Gary Clow, Stac's president and chief executive

Most users contacted said they thought the idea of compression over a local-area network seemed like a most one, if the technology could

Novell pumps up enterprise

CONTINUED FROM COVER I

slogy at Boston Edison Co., anid, well's Unix direction is crucial to us" because it provides a scalable platform that can support new applications, particularly in the customer support area.

Noveli plans to strengthen the integration between UnixWare and NetWare gradually during the ext two to three years. Currently UnbxWare clients can necess No Nare servers and vice versa. The lout will for the first time exten to UnixWare basic integrated Not-Ware services, including authention, network and systems man nest and directory services, a

The company also plans to mi nte Taxedo, the Unix-based dement environment, to Net Ware by the end of next year, said Michael DePagio, senior vice pres-ident of Unix System V. That would ole meers to build NetWare aptions that can access Tuxed M hosts via Turado's CICS com

nent, DeFazio said Another key goal of the rollout is to move NetWare from its current status as an isolated hindery-oriented server to a ented system. This of

fort would build on what has been done with directory ser-

These efforts will create a new seperation of NetWare Applica den Services, includ the following:

Work-flow ma ent, which will enble the NetWare server to act as a retory server and router for uments generated by Novell

and third-party messaging sys-A software distribution system sed on NetWork Navigator that will provide centralized software

distribution to NetWare 3.X and 4 X systems, due in the fall. ► A NetWare video server that will allow NetWare servers to deliver

full-motion video to Windows clienis over the local-area network It is due out by year's end. Novell intends to provide client systems with transparent access

to the application services via NetWare 4.0's NetWare Directory Service, an object request broker within NetWare sales mode its AppWare frame on Park of Mountifu to work. The directory will be extended to tal business in 1991, with the remainde

UnivWore at an undisclosed time. Novell also plans to provide NetWare for Unix, which will allow names to run NetWare Loadable Modules and Unix applica-

tions concurrently on the same This is similar to the NotWare for OS/2 product co-announced with IBM last week, which allows users to run OS/2 2.1 applicat and NetWare 4.0t services on the same system.

All in the network

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IRM to add to Information Warehouse

CONTINUED FROM COVER 1

while the Locator is a nice idea, "unless it goes across diverse platforms, it deesn't do me any good."

Similarly, Bill Inmon, a data warehouse consultant associated with software vendor Prism Solutions, Inc. in Sunnyvale, Calif., said, "If you doo't support

multiple vendors and multiple technologies, then you don't have a viable product." He added that, based on his contacts with customers installing a warchouse, very few choose IBM plat-

forms for it.

Arneld responded that the Locator's operating environment requirements "do not neem to be an inhibitor" to users

whom the company has talked to so far. Nevertheless, he said, "We're looking at other platforms, and we'll continue to nursus that where it makes seone."

Not everyone agreed it is a large drawback. "I don't see it as a major hit," said John Mann, senior analynt at The Yankoe Group in Boston. "You can put the Loestor on an OS/2 server somewhere, and one server can support quite a few us-

rs." proMore important, Mann said, IBM will fiem

nally allow customers to move data around the network. "IBM is recognizing the reality of customers" environments.

They're doing the inevitable."
Susan Ostervelt, a corporate data admissrate at Storage Technology Corp. in Louisville, Colo, and an early warehouse adopter, said she is very interested in the Locator. "We've been dealing

with it manually, on paper. Most of the products that exist are too technical for end users, so yes, it appeals." Robert Holland, president of Holland Systems Corp., a consulting firm in Ann

opstune tory, a concentrate at an arthor, kick, said the Locator concept is a good idea but does not replace the time and emergy required to standardize the data and build the basic warehouse at the chitecture. "What good does the key to a car do you if you don't have a car?" he asked.

Parallel box draws near

IBM is essentially on schedule with its Enterprise System/9000 parallel processor announcement set for later this year, a company executive said last week. But the unveiling will likely take place in October—or eveo later.

The machine, intended to handle complex database queries and off-load that work from the regular maintrame, will be able to link as many as 50 processors in its first go-round [CW, i.e., 18], it will connect to a traditional ES/9000 via Symplex, IBM's fiber-optic channel extender.

Bot the liming of the announcement is off IBM's usual second-Tuesday-in-September schedule. Bit is working with a few customers to get the major bags out before announcing the system. General availability is scheduled for soon therefore, and Bit Rocky, director of market operations at IBM's Enterprise Systems. Head of the scheduled for soon the case of the scheduled for soon therefore, and Bit Rocky, director of market operations at IBM's Enterprise Systems. Head of business at IBM's Enterprise Systems.

— Johanna Ambrosio

Corrections

*Because of a reporting error in the Aug 2 issue, the version of Windown NT that BankAmerica Corp. is running was misidentified. The bank is running the standard edition of NT.

•Because of a reporting error in the Aug. 2 issue, the company for which Liz Barnett works was misidentified. Barnett is an analyst at

New Science Associates, Inc. in Westport, Conn. *Because of an editing error, T. J.

*Because of an editing error, T. J. Rodgers' name was misspelled in the Aug. 2 issue.

*Due to a reporting error in the Aug 2 issue, John Lochow's duties were incorrectly detailed at CNA Financial Corp. He runs the IS divsion, not the IS départment.

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tion from a conformal assistant and A beat Vey of Programmy's a columnic of their from the #8 to the GSA Constract Number GSOK93AGS6403

Apple pitches Newton to corporate users bit/sec. infrared system to beam data to other Newtons. A Personal Comput-er Memory Card international Associ-

BOSTON

Tens of thousands of Mecintosb fant braved the heat, the crowds and the ercooked chowder at last week's MacWorld Exposition to bear Apple Computer, Inc. make its corporate nitch for the Newton MessagePad. Apple's primary

goal at this early stage in Newton's life cycle is to make sure big besiness ees the handheld electronic organizer as something

re than a Game Boy on steroids. Analysts also noted that Apple must be able to provide an adequate supply and selection of communications products and application develope tools to accompany Newton, while developing quicker and more accurate handwriting recognition. Although Apple is hyping MessagePad for its "any-

time, anywhere" capabilities, its comions capabilities will be limited until the end of the year, acng to company officials. In its initial form, the MessagePad's built-in functions will include Local-Talk for Printing and comwith Macintosbes as well as a 9.8K

ation slot will also offer options for future communications pro-Apple was able to pull a rabbit out of

its hat at the product's splashy intro duction by trotting out several major companies that are considering proj ects that will use the

> Most of the M agePad tire kickers said they see the device as a way to quickly manage and com formation between their central office

systems and the polat of contact with The U.S. Department of Defense, for instance, is working with Apple and systems integrator KPMG Peat Marwick to apply the MessagePad to its bealth care operations. Final contract negotiations are under way for a pro-

ject called ProMed, said Col. Fred Goe ringer, a project manager at the U.S. Army Medical Material Agency. The health care environment is a highly dynamic workplace, so we are excited about the promise of unteth ered communications," he said ProMed will allow physicians imm

as medical history, test results, patient records and problem lists.

American Express Co. is also work ing with Apple to develop customized applications for card members who use the MessagePad, said John I. Wil-Sams Jr., action vice president at American Express Travel Related Services Co. Williams was short on specifies but said American Express "is working to develop customized appli cations for the business traveler as

American Express Card members." Likewise, Ira Tolmich, The Coca-Cola Co.'s director of information technology, said the soft drink maker plans

to integrate the MessagePad into its work-flow model. Gaston Bestinens, general manager of Apple's Personal interactive Electronics Division, said corporate interest in developing applications for MessagePad is already high. According to the company, more than 1,500 develophave expressed interest in devel

g applications for the Newton family Jeffrey Henning at BIS Strategic De cisions in Norwell, Mass., said he was essed with the developer curios "That's a huge number of inter rties for a device with an insta se of zero," he recently wrote.

FCC widens options CONTINUED FROM COVER I

in Washington, D.C., who represents telecom users in the financial services industry. This is because switched services are used by firms

with lighter traffic loads that do not justify dedicated-line price tags. But the ruling should also touch large comsnies looking for alternative local access for

their smaller sites, Levine said. A possible downside of letting more carriers into the network chain is that it could "create more points of failure and concern," said Jerry Noble director of telecommunications at the American Cancer Society in Austin, Texas. He said the finger-pointing among carriers when there is a network problem is already "a night mare. You may trade off cost savings at the back end in terms of management headaches."

Although generally it is a customer's longce provider - not the user - that choose es who will carry the traffic between the local central office and the long-distance network, the continued erosion of the local phone company's monopoly should bring the cost savings and better service that traditionally acco ny competition, users and analysts said. 'Our experience bas been that this kind of

activity has always resulted in lower costs," said Bob Michna, vice president of telecom munications at Actna Life & Casualty Co. in Hartford, Cone, However, other users said the cost impact depends on interexchange carriers passing savings on to their customers.

While we could benefit from lower costs . . . I'd have to see it to believe it." Noble said. AT&T spokesman Andrew Myers said users "can pretty much bank on our passing the rates green access giant MPS Communication

Access lines from the local to the long change carriers are gaining competitive

THE LOCAL HETWORK IS SINCE ATRIT'S 1984

along." But he acknowledged that AT&T has a bias toward Bell operating company services. But "the smart user will see to it that the longdistance carrier chooses the cheapest or better

access company," said Brian Moir, public policy counsel to the International Con Association user group and a partner at Fisher, Wayland, Cooper and Leader, a law firm in Washington, D.C.

Chris Finn, a son cations consultancy TeleChoice, Inc. in Verona N.J., predicted the ruling will not benefit most husinesses for three to five years. "Interconnection ... using switched services is techno-logically more complex than providing private

lines," be explained. Nonetheless, the PCC action "signals that the local-exchange monopoly is going to be dis-manifed, and sooner than most people thought," said Royce Holland, president of al-





Mark Page knows the situation well. Vice President of Connectivity Products at Sybase, he's helped a long list of customers develop integrated solutions to one of the most significant problems in client/server computing. He shares that experience in a taped conversation "Making Connections." Client/Server Computing." For your copy, call 1-800-SYBASE-1.

Computerized records: An open book

Integrating existing systems to share information

Increasing the use of com by physicians and nurses

implementing the comp based physician record

Establishing remote links to physician offices, cárics, HMOs, etc.

CONTINUED FROM COVER 1

Not just the usual cadre of pri vacy advocates is concerned. A major study by the prestigious in-stitute of Medicine in Washington. D.C., strongly backed comput based medical records but said the privacy issue, not technology, is the No. t barrier.

All that autom damn bit of good if people don't trust the system and then reform fails due to a lack of participa-tion," said one member of the admistration's health care reform task force, who requested ano-

No details were available yet but the Clinton plan is expected to call for a nationwide network of zed medical records. Instead of a monolithic database, the an is to link the various electronic records in medical facilities and regional health alliances acre the country into a very distributed

Every American will get a unique patient identification num-ber, which will be the

key that unlocks and for that patient. "You need a unique identifier so that when you go into an emergency room in Sheboygun [Wis.] but you live in Omaha, your informa-tion can be obtained," the task force mem

One major contro-versy is whether that patient identifier curity number or ould be based on a

different numbering system. The al Security number bas a pracle already have one and know it, but a coalition of privacy advocates recently wrote a letter urg-

Unprotected password
The problem, Rotenberg said, is
that the Social Security number is
widely used as the identification
number for tax, employment, credit and motor vehicle records already, so applying it to medical records would make it easy to merge all of those records into a Big Brother dossier. "The Social enrity number is like a pass-ord toother flee," be said.

Use of Social Security nu s so widespread that it is easy for hackers to get them and access edical systems, privacy advohard to keep records straight bese some people have duplicate ers, others share a family number, and the Social Security er lacks a "check digit" to

verify keypunching The Clinton task force bad originally settled on using the number but has recently begun leaning away from it because of the privacy controversy, according to



the Medical Records Institute in Newton.

Whatever numbering scheme is nsed may be less important than sing federal legislation that es-

tablishes the ground rules (and penalties) for disclosure of medical records, said longtime privacy expert Alan F. Westin, professor of ublic law and government at Cobis University in New York.

State law [on medical privacy]

is extraordinarily diverse and, in many cases, antiquated. We're moving toward regional information systems and national exchange of [medical] information so the time is right to easet broad

U.S. Rep. Gary A. Condit (D. Calif.), chairman of a House subcommittee mation privacy, is cur-rently drafting priva-cy language to ride on the coattails of health

interstate transfer of

to continue to rely on differing state confidentiality laws," Condit said. "For coample, which law applies to the record of a patient who lives in Maryland, has a doc tor in Virginia, a hospital in the District of Columbia, an employer with beadquarters in California

and an insurer in Connecticut?

The Chicago-based on (AHIMA) has afted a bill that ald generally prodical records unless the patient signs a narrowty defined

uld state a specific and time limit for the The problem now

is that invers apanies require ended, blanket autho-

them to access all of your medirecords at any time," said Kathleen A. Frawley, director of the AHIMA's Washington, D.C., office. Of course, it is possible that el

ronic patient records could be more confidential than paper records if strict security controls are implemented from the start. For example, multilevel access controls could allow clerks to see

only administrative data, not the whole medical file, and audit trails could identify users who have "pecked" at certain screens, noted Pamela Wear, executive director of the AHIMA

A few medical facilities acre the country already have electron ic patient records and work bard to safeguard privacy, according to Wear, but the security of the nationwide network will only be as good as its weakest site. "That's why we want to set a high national standard," she said.



nce thus far with two of the country's largest electronic record systems the national credit bureaus and the National tion Center (NCIC) - is not comerved Rep. Gary A. Condit at a recent con-

sional hearing. odit bureaus have been roundly criticized by con ers and regulators for accuracy problems and ches of confidentiality Likewise, there has been ses of NCIC data, including cases in ch police officers have been indicted for selling

which potes offices after a factor of the NCIC.

After studying 62 examples of NCIC records abuse the U.S. General Accounting Office last month urged Congress to enact strong criminal sanctions. "How we be able to protect health records in a computent," Condit saked, "if we can't adeet criminal history records or credit

-Mitch Bette

IRS uncovers bogus access to tax records

By Gary H. Anthes WASHINGTON, D. C.

ing efforts to modernize systems at the Internal Revenue Service have had

rized access to confidential data. According to an IRS investigative re-

port released last week by Sen. John Glean (D-Ohio), 368 employees exploited "ineffective security controls" to snoop igh the computerized tax accounts of friends, relatives, neighbors and celebrities at the IRS' Atlanta office. Glenn said five employees had used the system to engineer fraudulent returns, including one person who triggered some 200 false tax refunds.

Early investigations in other IRS regions have turned up another 100 people payer information, Glean said

A taxing situation In fiscal 1992, the IRS:

second a billion documents so, scopps, etc.). died s.y billion pieces of pay acted Sa.sz trillion in taxes.

Source U.S. General Accounting Officer

"The IRS is the agency Americans fear most," said Sen. David Pryor (D-Ark.), who sits on the Government Affairs Comee, which held a bearing last week on the IRS. "This confirms their worst

Glenn said he was especially troubled that the IRS' investigation had focused on just one of seven regions and just one of 56 ways the database system can be accessed by IRS employees. "I'm con-cerned this is just the tip of a very large rg."hesaid.

me with ex er systems are not new Last Septen the U.S. General Accounting Office raised concerns about privacy and security in the architecture plan for the Tax stems Modernization, a 10-year, \$8 hilion effort. It is the third attempt in 25 years to overhaul systems at the IRS.

indeed, the IRS investigative report ublished last week said an enhan mt to the existing system to support Tax Systems Modernization "greatly in-

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tise in Computerwa 800-343-6474 ata accessible to more peop

er of internal revenue, said the misneed system is 20 years old and is used by 56,000 employees. She said it has nearly all the security features required by federal standards for such syste

including passwords and user profit that limit types of access based on us sure and fraud by making more job descriptions. She said the IRS has Margaret Milner Richardson, comm. ken steps to put greater m emphasis on security and privacy

Deputy Commissioner Michael P. Do-lan said the IRS' Atlanta operation dis-

covered the illegal activity by using software able to detect suspicious use spread use of the de

wer, Dolan said, each re RS center will soon get the "i on" software with hightical disc hardware to allow line ma ers to easily monitor system use — possible misuse — by their employee



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Wang details coming-out plans

Wang details coming-out plans wang Laborateries, line, appears to be on its way to emerging from Chapter 11 "minkruptey protection notest month. AU.S. Bankruptey Court judge in Borot last week approved the disclessore statement filed by Wang as part of its reorganization plan and sebeduled abopt. 20-confirmation hearing on the plan as a whole. The plan will now go out to the company's creditors and stockholders for balloting. Wang also signed an agreement in principle for a \$00 million private stock sale with Steinhardt Management Co. in New York.

BT, MCI progress on global deal

MCI Communications Corp. and BT said last week they have worked out the details of their global part-nership, announced in June, which includes a \$4.3 bilinvestment in MCI for 20% ownership. The ents include the appointment of Chris Earnshaw, BT's managing director of worldwide networks, as chief executive of the BT/MCI worldwide joint venlications services. The companie also decided the new company's headquarters would

Cisco yields to quasi-IBM net scheme Cinco Systems, Inc. said last week it will support a "standards-based" version of IBM's Data Link

Switching (DLSW) - under construction by an IBM developers' working group — on its routers in mid-1994. DLSW is BM's method of encapeulating inher-ently nonroutable Systems Network Architecture protocosis in Transmission Control Protocol/internet

mart cards, unite!

Smart cartus, univer:
Representatives of the financial services, telecommunications, entertainment, publishing, computer and health care industries have joined with government agencies to form the Smart Card Forum to address compatibility issues of smart card technologies across industries. Participants include American Express Co., Citibank NA, Apple Compute IBM, Bell Atlantic Corp. and Mastercard Is

New subnotebooks from Gateway

Gateway 2006, Inc. will today release an Intel Corp. 1496-based version of its Handbook subsorbook and a 1.8 in. thick color notebook family called ColorBook. The 2.9 point Handbook will now come with either a 25-MHz 4865X for \$1.460 or a new 20-MHz/40-MHz DX2 for \$1.000. for \$1,995, with a 130M-byte hard drive. The Color-Books weigh 5.7 pounds and have a 9.4-in., dyal-scan, passive-matrix color screen, a built-in trackball and a Personal Computer Memory Card International Association Type III slot. Using nickel-metal hydride batteries, Gateway promises two to four hours of battery life. A 4865X/25 with an 80M-byte hard drive costs \$1,985. A top-of-the-line 486DX/33 with a 170M-byte bard drive will cost \$2.585.

SHORT TAKES Storting Software, Inc. reported third-quarter sales of \$73.4 million, up 11% over last year's third-quarter results... Nordstrom, Inc., a \$3.4 billion fashion specialty retailer in Seattle, has signed a \$4 million contract to install NCR Corp. System 3000 servers and workstations for customer service and inventory management... System Software Associates, Inc. last week acquired Elke Corp., a Ptym-outh, Minn., maker of maintenance management and tracking software for iBM's Application System/600

Unisys, Intel take parallel road

Joint venture seeks boxes more powerful than mainframes

Seeking to leverage each other's strengths, Intel Corp. and Unisys Corp. last week said they are jointly developing a scalable parallel processing system for commercial use. The first beta-test systegs are expected some-

time next year. Early reports have indi-cated that scalable parallel processing systems are far less expensive and more powerful than mainframes Under the agreement, Intel will supply its Pentium microprocessors and scal-

able parallel processing mesh interconnect subsystem. The subsystem, currently used with intel's 1880-based Paragon supercomputers, was designed to provide high-speed commu nications between nodes.

Unisys, meanwhile, will provide a microkernel based implementation of Unix System V Release 4 and other applications software. Nick Derobak a vice president in the Unix systeens group at Unisys, said Unisys will market the systems but added

that the firms are still working out cross-licensing issues. Still, the parallel systems, which are not expected to debut until 1985, will have to overcome some major obstacles, most notably the shility to "narallelize" existing applications in a way that is trans-

arent to end users "The whole software picture is parallel versions of its fourth-gen-

the home of the biggest technical challenges," said David Frankel, a director of technology at Smaby Group, inc., a Minneapolis-based market research firm. Frankel and technology required to parallelize existing mainframe and other ap-

ons is not yet avail Unisys executives downplays those criticisms and said the our

pany plans to attack parallel softare development in other ways. For example, the mesh internect subsystem will include Unix microkernel message par technologies from Chorus Systems, Inc. designed to provide a "single-system view rather than a multiple-processor view" of app cations, according to Ron B Unisys' chief technology officer. in addition, Unisys is developing

eration language Mapper and LINC application development tools. These systems will be de-signed to "decompose" large macons across nodes, Derchak said an be improved without fiddling

with the compiler techno ogies," he said. Unisys customers said

they liked the development effort but offered mixed views on how rapidly their organizations plan to deploy parallel processing systems. George F. Thomas senior vice president and di rector of information systems at New York Clearing House, said his firm would likely implement one of the forthcoming parallel systems as long as they would run applications under MCP/AS, Unisys' prop etary operating system for its Model A19 mainframe. Still, Thomas expressed caution on parallel processing.

"We wouldn't jump on any new hardware or software venture up til it's proven, which would proba-bly be around the year 2000." Though Unix will be the core op

Though Unit. was a creating environment for the scal-able systems. Bott said the vendor developing communication schanisms to link the parall ries and 2200 series mainfram Derchak said the new systems v complement, not compete with, Unisys' parallel processing inition

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"Number in the HP Laurelet 48 MX printer "Per operating HP 15, Sopré le rédain, a cese time part haure of 150 m 100 million de la configuration en deutern propriet d'Arbé en HP bestéroigne un vertain parriels (sons Moreno d'Arbé en HP bestéroigne en exception parriels (sons Moreno de la Christopher de la configuration parriels (sons Moreno de la Christopher de la configuration parriels (sons Moreno de la Christopher de la configuration de la Christopher de la configuration de la co

Multiple environments are no longer worlds apart. Even if you have Novell Netware on one network, HP-UX on another and EtherTalk on a third, the new HP Laserlet 4Si MX printer easily connects across platforms. Automatically

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New tools debug client/server apps

By Melindn-Carol Ballou

Corporate developers of client/server applications are finding that testing disuted applications is dramatically more complicated than debugging bost based programs. This stems from the need to manage a much greater range of

tional mortgage company in Des Moines, lowa, and Delta Airlines in Atlanta recently overcame client/server testing woes by using tools that belp streamline and automate the process. But chal-

leages remain. ese include integrating a multiplicity of bardware architectures and applieations and working around us desktop environments that do not offer support for multitasking, such as Win dows and Novell, Inc.'s NetWare

At Norwest Mortgage, senior quality analyst Joan Woodward spearheaded testing for a client/server mortgage pro-cessing application that was brought ap last week on some 400-ptus Windows

based desktops. The task was made on er by testing tools from Software Quality Automation. Inc. (SQA) in Woburn, Mass.

With the SQA tools, which use Microsoft Corp.'s Visual Basic as a scripting innessee, Woodward's team was able to create the appropriate tests in a t0-day period and run regression tests daily for the next 15 days. "Before, it would take us 10 days to perform one test manually With the tools, we can stack the tests and

run them in batch at night," she said Bill Elder, project manager at Delta chose the SQA tools to handle object based graphical usor interface (GUI) development and testing for a client/set reservation system that will go out to 30 test users later this month

"We wanted

reuse it." factors that make client/ server developpiex and appli ous so diffi cult to test are

ment of GUIs and the integra-

tion of a range of applications across a range of platforms, databases and networking protocols, Elder said. Test suites in conventional m

ing environments are m programming environments are more predictable and deterministic, while in client/server environments, multiple variables interact with one another. "Regression testing with client/see

is particularly important because everything interoperates with everything else where it will be less likely that a change made in one place will necessarily affect other areas," said Phil York, a vice president at systems integrator SHL System ouse, Inc. in Chicago, SHL Syste has an alliance with Softbridge, Inc. and page its Automated Test Pacility.

But one area these sorts of testing tools cannot address is the challenge of hringing together multilayered architectures with multiple applications. 'Our joke is that if you're going to have

20 different products inside one little box, it's highly improbable that anyon has used that exact combination of products before," York said. "How do you know whether it will work? You don't. You write to the APIs and bone.

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Cross-regional ATM service debuts

By Joanie M. Werch

The first carrier to offer Asynchronous Transfer Mode (ATM) network services stepped up to the plate last week when MPS Datamet, Inc. revealed it already has a 14-city ATM network up and running. The move means that neophyte ATM

has taken a key first step toward preventing the lack of interconnection among far-flung network "islands" that has previously derailed promising widearea technologies such as integrated

Services Digital Network.
Ken Holcomb, vice president of MPS
Datanet, estimated that local-area network interconnect services via the T3

(45M bit/sec.)-speed ATM network would average one-eighth to one-sixth the cost of ordering high-speed lines from local and long-distance carriers and investing in equipment that can handle T3.

The pricing that Holcomb outlined for the ATM service was \$8,000 per connected site per month for 45M bit/soc. links within a metropolitan area. For users in-

terconnecting between metropolitan areas, pricing depends on individual customer variables, he said.

"We see a lot of opportunity for ATM in the wide area," said Rosemary Cochran, a principal at Vertical Systems Group, a consultancy in Dedham, Mass., "but timing is an issue." At the moment, there are few local ATM networks needing to link arms the wide area, she said.

across the wide area, she said.

However, pioneering companies with high-handwidth applications can reap the benefits of MFS Datanet's wide-area ATM service.

Such bleeding-edge firms Inchude Boar, Blearns 40, to New York, which is already running some wide-area ATM over its own private Synchronous Optical Network metropolitan-area fotoal highway to interconnect clusters of board ATM networks, said Jeff Marrhall, senior managing director of communications technology.

technology.

The brokerage firm is
ready to take
advantage of
the Army Marshall said. "We
want to get our
applications to
operate seamleastly around the
globe the
way they do in
the company,
he said. "Carriors useds as MCI.

ers such as MCI
and BT may
have a global
presence, but we're starting with MFS
because they have been a leader in get-

tingthings done."

Government meers are also ramping up. The U.S. Environmental Protection Agency, for example, said that any new LAN wiring at the EPA will take advan-

lage of ATM when it comes along, largely to serve deathy of video applications. The lenty application service MFS Dataset is providing to date is the High-speed LAM interconnect (HLI) it has been offering since last full (VM, Oct. 12, 1962). ATM is not causally touched for its strengths in data-only applications because it is optimized as a compromise for

mixing voice, video and data.

But MFS Dataset's advantage in supporting HLI is that "it gives customers
native-speed connectivity for Ethernet
or Token Ring without them having to
pay expensive fees to the interexchange
carrier for T3 lines," Holcomb said.



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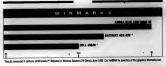
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Voice recognition

ant week, Macintonh developer Articulate Systems, Inc. and Voice Processing Corp., a maker of voice recognition systems, amounced plans for the first over-the-plone speech recognition system for the Apple Computer, Inc. platform. The two will develop decktop applications for Apple's new digital signal processor-based Centris 600AV and Quadra 840AV Macintonh models.

Products resulting from the alliance, which will ship under Articinte's PowerSecretary brand name, could begin shipping by year's end. The partners will also offer Apple developers a telephony speech recognition tool kit suitable for phone-to-phone applications.

Blue light special

BM recently used a solid-state, have-light have in an optical recording system that was able to read and write data at a record 25 hillion bits (gigabits) per square inch. Righer-frequency bice light can be focused into a smaller spot on an optical disc than current infrared light systems.

At the new recording density, a Svi-mich opical dule could hold 6.3G bytes, a density five times higher than today's best rewritation of the control of the control of the tall which the control of the put from a gallien aleminous arsenise diode laser and pusses it through a frequency-doubling device. Company scientists said they hoped to have a commercial version of the technology in four to five years.

Record quiet

BM has applied for a Cultures Book of World Records citation for creating what it calls the quietest place on earth. The echoless testing room at IBM's Book Raton, Fis., facility charmny and. The room is those when the cound-shoroling libergians wedge ca and sits on its own foundations to prevent whereincon. The 1982 edition of the book lists a "dend room" at a field freeploses Syriom laboratory in Murray Hill, N.J., as the quietees.

Secret agents of software

MIT hopes apprentice agent technology will increase productivity

By Michael Vizard

hile users today enjoy the benedits of the many tasks that supposedly have been automated by software, the reality is that these applications are still rile with the same repetitive processes as the old paper-based system.

As such, the electronic format certainty makes it easier to file and merge information, but it does precious little to automate the drudgery of performing the tasks that consume the average worker's day.

The folks at the MIT Media Laboratory have been giving this situation a great deal of thought lately and have some progress to report.

Punded by Apple Computer, Inc.

you're end.

and the National Sec.

great technology that
can executably t

set of circumstances.

For example, if the conflict among rules agent software detects that every Monday morning are cap a user downloads a specific set of In fact,

a user downloads a specific sit of database files into a spreadsheet; it will automatically download those files into a spreadsheet; it will automatically download those files into a spreadsheet were ploudes; Or the agent may detect that the user sever refuses so that the series reserve refuses to the second to the series of the second to the series of the second to the series of the second to the second

Prototype ready Led by MIT Associate Prof

Pattic Macs, developers at the lab have created a prototype of the agent technology written in LISP that rums on top of the Eudors. E-mail system for the Macintosh. The next step for the researchers is to convert their program into C



AIT agents use icons to tell users when they need more tulk her have a magnetion for automating a particular task

language code that can be attached more readily to existing commercial programs. This work is scheduled to be completed by

beinding flexibility to the control of the control

in this way, agents spable of learning, she said.

imitating examples drawn from g memory, responding to user feedk back or by being programmed by a y series of examples created by the

neries of examples created by the user. Mass said end users may begin

seeing a new generation of agent technology in late 1994.
"We wanted to make sure it would be easy to teach agents, as opposed to having a set of abstract rules. End users won't deal with conflicts among rules or maintain

rules, "Mass said.

The MIT approach differs from traditional artificial intelligence programs, which try to infer the user's ultimate goal by using rules with preprogrammed knowledge—an approach that requires large

amounts of memory.

Macs said she can create agents
that will only take up about 300



They're her

My department's editorial retreat last week featured a CiO roundtable discussion during which the conversation turned to the burgeoning wave of personal digital assistants,

or PDAs, about to crash ashore.

About a year earlier at a computer influstry conference, Apple's John Sculley talked about the eventual

ence, Apple a John Sculley talked about the eventual survival of Newton, the most-awaited PLA. What he said was pretty remarkable to me: He didn't know what Newton would be or, for that matter, how it would be widely used. That was prophetic if nothing else. One of the CIOs at our retreat said the last thing he

One of the Cross at our retreats state over some one of this trousers, cram into his vest pocket or stuff into his overstuffed briefcase, particularly when it's unclear what the device will do. A much better idea, he said, would be to

ter idea, he said, would be to build such a device into a briefease, just like a jock. Just like a full-function calculator. Just an cheap.

cheep.

Back to Sculley's conundrum of just what these things will do for you. They will recognize handwriting. But whose?

If it can recognize my long-hand, then it's smarter than I am because I can't recognize a more comparise to the state of the sta

hand, then it's smarter than I am because I can't recognize my writing half the time. It might recognize my printing. Now that's efficient. It will also provide me with a nice appointment calendar. All this for only \$700.

This is not a column about Sculley, Newton or PDAs.

It's about a throw-it-against-the-wall-and-see-whatsticks approach to new technology that doesn't do flip to help IS-solve problems. You can pick not other techologies that ride into the marketplace with this approach and find they suffer from the same debilitating library of help in the property of the same debilitating.

liness of being technology in search of a market.

Such homeless technologies wouldn't be a problem if they could be ignored. Unfortunately, they can't be. Part of the problem rests with the modia, of which we are a part, that too often fails to ask the right luns-

tions when some starry, new wave product rolls out.

Also, it is difficult to ignore the piesotings of end iners, who can easily become enamored of technology
for its own sake. And as we pointed out in bur story on
"shadow IS" pending, usee departments are finding
ways to speed money contaide the purview of IS
(FW, July 2011 That would be fine, too, if end saers

didn't eventually seek the help of 13 when managing the things they've acquired independently But the fact is that a bit of technology bought independently by end-user departments, such as incompatible LANs, has come to roost in the 18 department.

The heartening news is that most of these throw-liagulast-the-wall technologies eventually necession. Such that weight of their own press releases. While that a had for our forests, it does at least provide a costly issens to technology providers that refuse to view the world through the eyes of people who really don't want any more junk hanging off their pasts.



Bill Laberia, Editor fo



Customer (dis)service

Esther Dyson's column "Just-intime trutaing" [CW, July 19] tolis how computers can assist us in the depersonalization of everybody. Make each customer or prospect a profit center and let the computer assign a profitability number to each. If the number is ton low, the customer is worthless.

customer is worthless.

This is not only callous, it is a stupid business plan. How can companies profitably grow just by selling more to the people who are already their best customers?

already their best customers:
Dyson should realize that abundening a customer is a rejection of opportunity: Listen to the customers who nobody wants, find the opportunity to satisfy them and resgineer your firm to do it efficiently. If you can do this, you will be good enough to also win your competitors, most prized customers.

ers.

I do not like to do business with anyone who lets his computer deeide if he should care about me, and those who assign this role to a system assault my dignity and their own.

Al Christians Lake Oswego, Ore.

Mail shortage

"Users narrow E-mail product lineup" [CW, July 19] on corporate electronic-mail gateways was interesting, but what happened to any mention of the use of public services such as AT&T Mail, MCI Mail and CompuServe? Companics with many sites would do well to consider these alternatives.

Also, it appears to me that Creative Network Strategies' coat comparison for a two-page fax in the accompanying chart is wey out of line. It is 80.7 deer fax; is for real, and you have a PC with a modera, for the same price you could send that fax on CompuServe and gat a free membership, even if you and only one fax per mental?

Dated W. Stoser

Dated W. Stoser

Dated W. Stoser

Dated W. Stoser

Pasadena, Calif.

Dealing with disaster

"No one could have predicted a river would swallow our Des Mohne building," said an MIS manager in "Data downed in Midwest floods" (CW, July 18). Not sof This is exactly what experienced risk managers do.

For example, it is essential to check the site plan of a building near a river to determine if the building's basement in above the "50-year" flood plan eleva-

ng a risk manager to integrate new Unix environment. Why would be depend on an MIS namager to evaluate this? Robert V.Jacobson

What's 'standard'?

I would like to add my endorsement to the statements outlined in David B. Cielkowski's article "Cutting through the hype" [CW, July 26]. The concept of more stringent standards for PC manufactures. or simple adherence to accepted standards, would simplify the tives of 18 management immenseby. The checkered success record of implementation for the variety of industry-standard machines continues to wreak hevoe with large-scale PC implementations.

Proquestly, it is the price aspect of price/performance that directive purchasting decision, without sufficient regard to the performance end of the equation. Too of ten either a very competitively priced machine is physically incapable of providing the horsepoweit to run applications or the support such as mainframe is an over-in-

volved task at bost. In too many cases, one is faced with continual cassalate on the budget to justify equipment thest will undoubstedly prove its worth in the long run, but the issues are often reduced to the bottom like. Perbape it is time to bring the manufacturers on a shorter feedh or more appropriately, develop a purer definition of pretacly what is meant by "industry standard." John Hardison.

Marietta, Ga



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Help upgrade the U.S. educational system

Gary J. Beach



Schools can't educate the way they should without our help. They don't have the budgets without our help. They don't have the bougets to purchase what they need, and vandors aren't inctined to give it to them. But chances are that you have good-quality used machines and unopened copies of software occupying space in a storage closet somewhere.

Computerstoriel recently conducted as

Computerworld recently conducted as analysis of its computer investory and discov-ered that for every 50 employees, there was one computer available to donate. If your com-pany has 1,000 employees, chances are it has 18 computers that it could donate to a school.

Even if you don't have equipment or soft ware, you have another sorely needed re source — your own hard-weep professional knowledge. It took those of us in the field is bount to figure or tills, by such sprinting conjusters on desks accomplishes nothing. Proceed to take maximum advantage of to take maximum advantage of computer resource. That's knowledge that could save educations a bit of missteps.

Plefut up the phones and safe uses that a conjuster resource.

could nave educators a lot of misseteps. Pick up the phone and ask your local school officials what's needed. Ask if they have a game pian for bleading technology into their learning regimes; if they need help schecting the right products or petting those products or if they need someone to do to acheer training. Become part of the solution. Join our virtual foundation and help wire our country's classical schedulers.

you do, send me a note and let me know w

you've accomplished. I'll fill you to on how we're working with Congress to put phone jacks into class-rooms as well as with ven-

Beach is publisher of Computerworld. You can reach him on MCI mail at 507-7872 or by writing to him at not

The secret shame of client/server development

ADVENTURES IN INFORMATION by Patricia B. Seybold

hree years ago, Mitch Kapor stood up at Esther Dyson's conference and spoke about the "secret shame" of the PC industry: PCs were too hard to use I'l maistry: I'll were too hard to use, and noos of se was willing to admit it. Mitch was right. We were all participating in a shameful neam—
pretending that computers were easy to use when most of us knew differently from person-

- integrating computer techr into the fabric of the U.S. educa

You'll see a full-page notice about the la

have to do is take an action to accelerate the introduction of information technology into U.S. classrooms.

Walk round your local school when it opens next month. If it's like the one in my community, it will have a computer room where students go a few times a week to learn "computer."

go a few times a week to soars "computer U.S. schools have to stop teaching "comput-ce" in the same way they forch music — as a separate subject — and start integrating the computer into the whole learning process. Why? Because the sheer quantity of informa-tion available for learning today demands a technology-based solution. And because reali-

ties of all kinds are now changing so quickly

Now there's another seam in progress. Peo ple are stampeding toward client/server appli-cation development because they are being told it's easy, and that's just not true

No matter what application development tools you choose, it's entremely difficult to de-sign a high-performance client/server application. It's worse than a black art. As one frustrated customer put it, "We've done about 12 projects now, some in-bouse and some con-tracted out. Less than half were successful and we don't even know why some work and

some don't." The most popular way to implement client/ server applications is to split the functionality right down the middle. You put the user interface and the application on the PC, and you store the data on a database server. When the user's program requests information, the PC program spits SQL requests to the database server and the server returns the requested in-

formation. A piece of cake, right? Well, not ex-

for very small result sets. When the datab server must return larger amounts of informa-tion, the network bogs down and so does the

rver's ability to service other requests.
What makes things even trickier is that it's tremely difficult to predict the size of a result extremely amount to predect use saw our revenue much information people will need or want are titlely to be wrong, particularly if users are in the throes of their first exposure to the seduc-tive lure of point-and-click graphical access

Having encountered this dilemma a few nes, developers are getting smarter. Now times, newslopers are getting smarter. Now they're restricting end-user access to a set of canned SQL quaries. They're using triggers to do more processing on the back end and to de-liver result sets to end users in conveniently closed betting (or ed batebes (convenient for LAN traffic con

These are reasonable tactics given the limitations of current products, but they aren't a solution. Limited access is not what most businesspeople want. Users want, and should have, the ability to grovel around in the detabase design what! scenarios, updating records and adding fields and relationships at

Don't prosume a simplistic split between cli-ent GUI application logic and back-end data

imize performance by sliding the pro-ogic from the client to the server, de-

gon the type of request and the traf

and twiddle their toes.

In the meantime, dever be assamed to act that it's very hard to act that it's



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Charles Babcock

LANlocked

If it's difficult to manage a LAN right under your nose, what are you going to say when the boss calls demanding to know why his remote access device isn't concting over the spread-spectrum radio quency? Mobile workers are extendg the corporate network, and all the oblems of managing the network are sing to be extended along with them It's not just the boss, either. More omployees are spending time outside the of-fice. Whether visiting customers, scout-



or merely camping out in someone else office, they will continue to need a virtual link to their home The form that link

should take is bein debated in IS shops today. Should mob workers run a machine at the home offi by remote control, or should they become

des on an extended network, with all the services of a home user?

Until recently, the latter was not a redistic possibility. Laptops were an atom izad extension of corporate information systems, carrying data and providing a modem link to home base, but the link was tenuous. Laptops functioned best as stand-alone machines, a weight added to the backpacks of corporate voyagers.
As the number of laptops exploded

turing the last three years, however, users began to agitate for the ability to nse them as remote nodes -- computers on the network rather than dumb termi mais. Recent software additions have made that possible over a phone bookup for specific functions, such as CC:Mail

ote from Lotus or RemoteWare om Xcellenet.

still have a long way to go because cellu lar phone services provide transmis sions of uneven quality. The protocols of mobile radio-based systems do not atch those of corporate nets without avy customization. And satellited foods, which can be issunched from

anywhere, are expensive compared with Once attached to a phone line bookup

the laptops themselves have become more mobile in most other respects. I on ry a 6-pound, 386-based Compudyne equipped with a fax modern that to me is edy, easy to read and comfortable with a full keyboard. But it is also pass according to those who are really into

moone comparing.

Four-pound subnotebooks with active-matrix color are now available, and reg-ular notebooks come with credit-cardsize plug-in fax modems, LAN adapters, bard drives and extra memory: No matter how tiny the peripherals, bowever, the Achilles' heel of mobile or

puting remains the lack of support in the LAN operating system. IS managers should take a look at what their needs are going to be and advise LAN vendors of their mobile priorities. The followin are a few suggestions you might want to put on your lists:

 LANs should be able to recognize a re-mote node user and provide remote node rvices, but most can't. A LAN should try to prevent accidental

*LANs should minimize the amount of time that a mobile worker needs to be connected, reducing the phone bill. *LANe should offer minimal data syn

ers. Lotus' Notes is one of the few ways to get synchronization, but the service is needed on more than an application-by-

ANs should provide virtual or

ity, which allows to moose worser to prepare to send E-mail and faxes or prin out flice as if at the home office but store them in a buffer mrill the worker recon-nects. Novell's Personal NetWare will provide several of these features, but no one has yet provided all of them.

Bahoock is Computer world's technical editor. His MCI Mail address is 575-2737.



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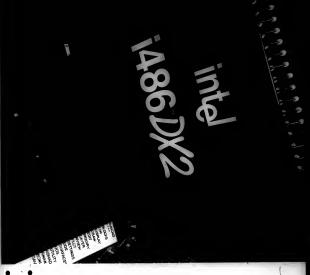
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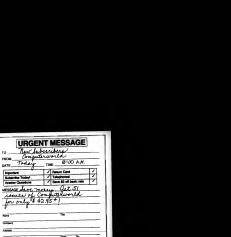
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The wait goes on for color notebook buyers

Users interested in moving to color noteb are experiencing deja vu: As with the desktop last year demand has vanouished supply.

An angry Louis Kahn, chief network adm istrator at the Centers for Disease Control's National Immunization Program, said even ough he wants only five LTE Lite 425Cs from his vendor, Compaq Computer Corp., and has a contract that guaranteed delivery of the products earlier this month, he has no idea when he

will actually get the machines. "They're blaming Sharp saying they can't get the screens,"Kahn said. He added that Comp has told him his machines are stuck in a 10,000

unit backlog that has no end in sight. Analysts say users like Kahn are caught in a vise of component shortages and unexpected

demand, and the problem extends across note-"Color demand has

notebooks has creat-

ramped up phen nally - we threw out our initial forecasts for this year and have Jeffrey Henning, an analyst at BIS Strategie Decisions in Normult Mane Demand for color

ed a backlog situation

for several reasons: Only two vendors can ship the big 8.4-, 9.5- and 10.4-in, thin-film trans (TFT) active-matrix color displays in volume — Sharp Corp. and Display Technologies, Inc. (DTI), the IBM/Toshiba Corp. joint venture. Of these two, DTI's supply is completely soaked up by IBM and Toshibs. NEC Corp. is expected to start a production line up, but not until early 1994. Also, more PC makers want to offer TFT color now, up from just a handful of vendors as

property as the middle of last year Caught off guard

The sharp rise in demand for TFT setivematrix color notebooks, spurred in part by IBM PC Co.'s ampressively priced ThinkPad product line, has also caught component suppliers by surprise. Vendor sources, speaking anonysly, pointed to color separation filter dyes as the main component problem

However, only three vendors in the world supply components. These suppliers have told Sharp and DTI they will be unable to catch up with demand until the end of the year. Plus, DTI and Sharp have limited capacity, and the exceedingly complex manufacturing process continues to have low TFT yields, which exacer-

Analysts said demand for smaller TFT screens that are easier and more profitable to build has worsened the supply of bigger

"Japan, for instance, has a ton of pachinko ariors (gaming rooms), and more and more of these are using small LCD panels, which are

phen, an analyst at international Data Corp. in

"If the best of breed, big panels were widely available, this market would really take off,"

Supply is also uneven. New York Life Insurance Co., for instance, can get color Versas from NEC Technologies, Inc. because it is NEC's largest notebook customer in the U.S. New York Life has temporarily removed the IBM ThinkPad from its product listing, though. We can't get our hands on the IBM note-

books, though they're saying we might he able to get a decent Matalek New York Life's vice president of corporate information Mutnick said he was almost glad

an industrywide problem."

to bear about widespread supp problems for active-matrix color notebooks. "Our users hold us re sponsible for not getting those systems in, so it's good to see that it's



IRM DC Co. to Think Port 5500

Graphics packages en route

Software Publishing to release Harvard Graphics update

Ry Michael Vizard

▶ After having lost its dominance in the pre graphics areas during its migration from DOS to Windows, Software Publishing Corp. plans to launch this week what observers view as its first credible effort in the Windows market

Harvard Graphies 2.0 for Windows rewards users of the company's DOS product who remained loyal while Software Publishing struggled to take advantage of the Windows co-

"I was concerned, but now I feel much happier a as a product and a company. The new release is light-years faster and more user-triendly," said Willie Reichenstein, PC application specialist at American Savings Bank in Irvine.

Willing to wait Reichenstein said be remained faithful to Harvard Graph-

ics, despite the presence of better presentation grap packages for Windows from companies such as Micros Corp. and Lotus Development Corp., because the costs of converting applications and retraining users were prohibiconverting app tive compared with the benefits to be gained.

He also noted that while Lotus has symbols that make it

easier to use, Harvard Graphies handles data imported from Lotus 1-2-3 spreadsheets better. In addition to being a more robust Windows implem

tion, Harvard Graphics 2.0 includes an Advisor feature that offers design tips, a Quick Look feature that provides previews of charts as they are being built and a custos

But Reichenstein said his favorite feature is the ability to display a presentation on 64 different computer systems across a network. This desktop conferencing ability comes with a Chalk tool that allows users to make annotati line. American Savings Bank will use this feature to allow users to conduct an electronic meeting between its trvine

and Stockton, Calif., offices, "We tried using a videoconferencing application for this, but you have to turn the camera on the PC screen and the image gets fuzzy." Reichenstein said.

Pricing for Harvard Graphics, which will ship at the end of this month, is \$395. Upgrade pricing is \$89 through the end of this year.

Alpha Software to enter Windows presentation graphics market

By Michael Vizard BUSLINGTON, MASS

After several months of manufacturing delays, Al Software Corp. is set to ship this mouth what is praised by one analyst as the most technically creative pre

se amays, as the most reconstant creater presentation raphics package available for Windows. But whether Alpha Software has the marketing clout to upport this package is very much in doubt, according to

Dubbed Bravo, the latest entry into the crowded pre tation graphics market boasts a number of tech



were created by other Bravo users

achievements, including tight integration with aprend sheets and the ability to work with data from other presen In addition, Alpha Software has chosen to a

ice Bravo at \$79, which is several hundred dollars les than competing packages from market leaders such as Microsoft Corp., Lotus Development Corp., W and Software Publishing Corp. [CW, July 19]

"Technically, Bravo is a great product. The challenge for them will be marketing," said Jeffrey Heaning, an industry analyst at BIS Strategic Decisions in Norwell, Mass. To overcome this problem, Alpha Software intends to emphasize the technical merits of a low-cost Bravo package

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Christopher Lindquist

NT users sound off



et Windows NT would go something like "Windows NT has finally, after several delays and a couple of years of bal-lyhoo, gone into the production phase where it will be transferred to CD-ROM nd floppy disks, put in boxes with man uals and distributed to resellers and cus

more — in about three weeks."

Only Microsoft could create as much hype around a nonevent as this "release reduction" will cause.

Say "NT" without the preceding "Winrwa" to a Microsoft person some day

and watch his reaction. You'd think you were kicking his dog. Same thing hap pens if you say "DOS 6.0" instead of "MS-DOS 6.0." In that case, of course, you are kicking his dog.

I'll stop oow. On to the pokes that have a base: the experience of users as shared on bulletin boards.

Long, long ago, NT was going to be a 32-bit version of Windows that everyone could use. Hardware requirements were going to be 8M bytes of memory on a

386DX machine. Anyone with such bard ware could enjoy the benefits of working with a moltitasking, multithreading.

hard-to-kill version of Windows. Now the word from Redmood is that the vast majority of people should stick with Windows 3.1 and wait for Chicago if they want a 32-bit operating system.

edless to say this has some custou Here's a sample from a San Francisco

"I don't know if this is funny or sad. It ms that the faithful Windows overs who want 32-bit processing are forever easting for something from Microsoft Many thought NT would be the answer and have been waiting and waiting for it. w that the product is approaching shipping time and the positioning of the net is becoming more clear, those aful users are suddenly being told

that Win 4.0 is what they really want!" That particular "faithful Windows user" is currently running OS/2.

And for those of you whn are going wait for what has been called Chicago, this bit from another board might be in

"According to reliable sources, it as ears that Chicago applications, while multitasked proemptively in relation to one another, will feature cooperative moltitasking internally within the Indi ridual applications. That's right -- no true multithreading; just some sort of co operative kludge

What does this mean for you? I'm sur Microsoft will have an answer by the time

I meotioned in a previous co NT's architecture was death on devices that wanted to directly manipulate system bardware. One such piece of hardware: the "dongle" security devices that pluginto a parallel port to prevent piracy However, it seems there is a work-

"What has to be done in that the softare author has to register a .Dt.L.un CONFIG.NT and the .Dt.L. tells NT that it can take cure of these port add Only theo you can get the program run ning. If the manufacturer tells you what port addresses are being accessed, then you can write your own DLL to do this,

but I suspect this is not what most end ers want to do." I suspect his suspicion is correct.

This next one is an adjunct to NT discussions, and it concerns Microsoft's Re-mote Access Services (RAS), which allow dial-in access to NT systems. Seems Mi-crosoft is going to remove RAS from Win-dows for Workgroups. Some users are

[Microsoft], apparently, has made up s mind that it is going to drop RAS from Windows for Workgroups) - a really reision ... But, alas, they appear to have dug in their beels about this matter and are going to drop this critical feature regardless of how important customers feel that it is to their enter-

Ever feel that whenever Microsoft digs in its heels about something that it's standing on your back? You are not

This will be my last column as a Com puterworld employee. Most of my elec-tronic connections will be temporaritu severed for the next few weeks as I settle into a new position as technical editor of a new IDG public called Electronic Entertainment. Walch this space, however, and send any suggestions to my one permanent cons tion via Internet at christienet

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By Michael Vizard REDMOVO WASH As part of a long-term drive designed to make the Office suite its primary software application, Microsoft Corp. has

advanced protocols to work in your

own applications X Window System version 11. release 5 (X11R5)

 Sun Remote Procedure Call (RPC). referee 40 Sun Netsork File System (NFS) Olem Server Development

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and Embedding (OLE) interface, Microsoft intends to show that its applie are becoming integrated to the pois where they are almost indistinguish from one snother. "It's aboot breaking down the barriers between applications," said Kath Schoenfelder, Microsoft general manag-

started previewing a suite strategy that calls for applications to work in close co-

Using Version 2.0 of its Object Linking

er for Excel Sneak previews In an attempt to drum up excitement over

operation with others.

its forthcoming generation of Windows applications, Microsoft has previewed nome features that it will include in Excel 5.0 and Word 6.0. The new release os are the core offe

ings in the Office 4.0 suite, which Micro soft will begin seiling this fall, said Steve Ballmer, a Microsoft concutive vice pres

However, delivery of the full Office 4.0 suite is likely to come in piecemeal as some applications in the suite become ready before others, be said.

Opce they are delivered, however, Microsoft maintains that their level of is cration will raise the bar for what users

Microsoft readies Office 4.0 will expect from Windows applications.
"Users will be able to scamlessly move around all applications and use any func-tion," said Mike Maples, a Microsoft ex-

ecutive vice president.

Visual Basic support In addition to OLE 2.0, Office will support he use of Visual Basic se a commoo mac ro language; cross-applicatioo Wizards that automate specific tasks; context-sensitive agents, called intelliSense, that will customize applications to a particu-lar user's habits; and a Pivot table query ol that will let applications draw in

The ageot technology that Microsoft Is including represents the first in a series of agents that are expected to become more proactive as the technology ma-tures, Schoenfelder said (see story page

Meanwhile, Excel will also make use of Pivot tables to allow users to view data in different dimensions and to organize that data into workbooks.

"Unlike other multidimensional readsheets, you won't have to prede rmine the range of data you want to ork with io order to have that data inin the spreadsheet." Schoenfeld-

aking applications function as doccation in 1994. Some of our competitors are just estehing up to where Wis-dows was three years ago. The world is about to shift again," Maples said.



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Lotus does Windows right

By Garry Ray

It has been nearly three years since Lotus Development Corp., the Cambridge, Manx-based mak-er of 1-2-3, first began showing the on of its popu-

ar spreadsheet program.
Unfortunately, reviews and user reports on that first version of 1-2-3 for Windows were not flattering t-2-3 for Macini



ogs right. Its t-2-3 Release 4 for iows, which was announced ax, is a full-blooded Windows ogram that takes com vantage of the environment's caties and, at the same time, dds a wealth of enticing features the venerable apreadablest. in fact, there are far too many new anced features to cover o Suffice it to say Release 4 is w the product to beat in the on-ing spreadsheet war with rivals ch as Microsoft Corp. and Borod International, Inc

reli of features nyone experienced with previ-us versions of the program will be apressed with an initial run of

Beginning with a revamped pull-own mean system, the enhance nats include a variety of cont asitive mouse pointers, Quick nus to change the attributes of any spreadsheet object such as the font in a single cell and in-cell editg to make immediate changes to

Other features, not so obvious as the above, have been added to rove the usability of 1-2-3. Release 4 finally makes available row and column selection simply by clicking on the row or column bor-der, Microsoft's Excel has sported

is feature for years. prowed from other Lotus roducts - specifically, from Ami dition to aut playing the style, font and no at of any selected spreadet item, the status bar m possible to easily change any of those attributes by clicking on the bar and selecting new attributes

Also adopted from Ami Pro are atures. For example, select

to the few hap here there they

ing the option to change a back-ground color brings to the acreen a palette of the 256 colors available for such purposes. Along the same lines, the fonts and attributes disboxes include a preview mode that displays potential changes before they are made. The dislog box shows a listing of all available ats, along with a sample display of the font being considered. This new emphasis on usability d presentation carries over

at effectively to the much-imved charting module. In previous versious of t-2-3 fer Windows, creating and printing charts was a kludgey procedure Release 4 simplifies the process by

First, there is an "intelligent" 'sarting mechanism that accurately derives chart labels, headings and data from a selected range; a user needs only to sele the desired range and the Tools Chart command (or click on the associated 1-2-3 Smartleon) to create a graphic. This feature also works with "collections" of spreadabeet data, which are n contiguous ranges of cells, columns or rows (collections being an equally important addition to Re-Once a range is selected, the

nouse pointer changes to a charting icon, prompting the user to position and size a chart window

est The overlaying the spreadsheet. The chart that subsequently appears can easily be edited by doublecking on any chart element. A elicking on any chart element. A separate drawing layer and draw-ing tools — originally introduced with 1-2-3 for Maximosh — can be used to enhance the chart or any other element in the spreadsheet.

data with others, or who cre

itiple versions of a spreads to accommodate various bu narios, will be enthralled wi the Release 4 "version mans Based on Lotus' Chronicle to nology, the version ma ows users to swap various s narios in and out of the sore et with only a few mouse cli For example, a quarterly but could contain best-case, ill

se and worst-case scenari Using the version manager, these rnatives can be swapped in nd out of the spress rmine their effects.

The version manager also sup-orts local-area network-based sers working on the same dsbeet, while a related tool the version manager index, allows users to create "scenarios" from a

There is clearly a lot that is new to Release 4, although there is littie room here to cover the more than 120 added @ functions and 250 macro commands, the macro anslator that converts older preadsheets to the new macro mat and enhancements to t-2-3

In fact, there is so much added metionality that simple for criptions do not do the proam justice. What 1-2-3 Reis or Windows shows is that Lotus can remain true to its users, at at the same time, lead the charge in the ongoing spreadsheet wars.

Alpha Software CONTINUED FROM PAGE 41 said Tim Stein, Alpha software di-

For instance, Brave supports bidirectional links to spreadsheets using the Dynamic Data Exchange shity in Windows. As a result, adjustments to a graph in Bravo will stomatically be reflected in either a Microsoft Excel, Lotus 1-2-3 or Boriand International, Inc.

Bravo also allows a user to import graphs that were created by other Bravo users, with all temate and background conver-

that user's current presen-Other key features include the

ability to maintain size and point relationships during the editing of a graph, an outliner and sorter facility that can be linked to word processing packages, Smart Datapictures that automatically wrap around text, 10 drawing tools and

in addition, Brave supports ob-tect manipulation and blending of images between two objects; the grouping of objects so that, for example, relationships on an organi zational chart can be maintained as objects are moved; the ability to import multimedia files and several prepackaged pieces of clip art.

I used to be a Harvard Graphics user, but Bravo is much simpler to

unn," said Ed Plice, director of MIS for Leon County, Fig. "You can pick up Bravo and start making pres

tations. With [Software Publishing's] Harvard Graphics, I had to go to a two-day class to learn how to use it," Pike said.

"My only recommendation is that they bundle more clip art. You bate having to search for elip art,"

But Henning said Alpha Soft ware, which until now has focuse on databases, is not likely to leverage its existing database po

"This is an incredibly crowded field that is dominated by software suites. Many people don't use presontation graphics packages ev-ery day, so they are willing to settle for a little less functionality as part of a suite," Heuning said. "You ware is about this market," he

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Apple Computer, Inc. has introduced the Apple Personal LaserWriter 300, which the company said is a compact as

pergy efficient laser printer. thing less than 15 pounds, the Perogal LaserWriter 300 can print up to 4 page/min. The product offers 300 by 300 dot/in, resolution and has gray-scale printing capabilities that generate a vi riety of gray shades for sharper images Apple's TrueType font tech corporated, and Apple's Grayshare

ter software is used for case of use Personal LaserWriter 300 costs \$880 ► Apple Computer 20526 Mariani Ave. Oupertino, Calif. 95016 (408) 996-1010

moselt has released This Is My Computer Version 2.0, a software tool that creates a detailed printout of a user's outer system.

By pressing the letter "P," a user re ceives a map displaying configuration in formation, CMOS hard disk setup infor CONFIG.SYS, WIN.INI and SYSTEM INI files, AUTOEXEC BAT and a tory tree listing of the entire hard disk. The program can run under DOS and Windows; it costs \$12.99. **▶** Benesoft

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Passport Designs, Inc. has introduced Passport Producer Pro, real-time, intertive multimedia production software.

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The product offers a visually or

"drag-and-drop" user interface called the 'Cue Sheet" that enables users to build professional-quality interactive productions with maximum flexibility. the company said.

sed configuration fo et Producer Pro is a Macinto Quadra with 12M bytes of random-aco APR 12 steam to

The prod ► Passport Designs 100 Stone Pine Road Half Moon Bay, Calif. 94019 (415) 726-0280

R-Machines, a division of SuperMac Technology, Inc., has introduced Futura II and Ultura, two families of 24-bit color graphics cards. Both products offer large-screen color with extended features. Cost: Future II starts at \$499, and Ultura costs \$1,299. E-Machines, Sunnyvale, Calif. (408) 541-6100.... Avid Technology, Inc. has introduced Release 2.0 for Media Suite Pro, a desktop video production system. Key features includnew effects, an edit decision list output option and a 63-field option. Cost: \$9,995 Avid Technology, Tewksbury, Mass. (508)

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NCR boxes take charge at CNA

By Michael Fitzeemid CRICAGO

The superserver market has developed slowly, but CNA Pinancial Corp. has put the hig PC boxes at the core of its re-engineering project: it has purchased 20 NCR Corp. multiprocessors

and plans to buy another 50 by year's end. CNA huilt a superserver data ceoter in its home office here as part of its strategic

Wall grafitti began its move to in 1987. John Lochow's steg project began with a 30-foot hat he papered from floor to cell

on. It included

Aug. 2]. CNA's branch offices, which support the firm's cotorie of ependoot insurance ageots, connect to the servers in the center, which in turn connect to crucial corporate data oo CNA's IRM maindata proter has 20

platform re-engineer-

ing initiative fCW.

NCR System 3000 suervers - 3410s, 3450s and 3550s running up to four processors. CNA created the server center as part of its effort to move its networks from IBM's defunct PC LAN Program (PCLP) octwork profocol to Novell, Inc.'s NetWare, ough some of the superservers also run Unix. Under PCLP, host connectivity was achieved

by putting a 3270 emulation card in a PC server in each branch office. This server connected to NCR boxos, page 56 Superservers at the center

LAN saves TV network \$1M

Software licensing, maintenance costs drop in mainframe downsizing

Ry Michele Dostert VIRGINIANGACO VA

The Christian Broadcasting Network (CBN) has completed

The nonprofit religious broadcasting company down sized more than 35 applications — from studio sch

mated the operational cost of downsizing to a PC-based local-area network at \$1 million, most

mainframe program mers, programming tools and contract pro-"The capital equip

ment expenditure didn't actually cost as any thing we discovered that buying equipment for the LAN would actually cost us less than opgradit our mainframe would have," said Jim Funari,

CBN's MIS director. "We were forced off of the mainframe by the rigid, exceptions pricing schedules charged by

a 2½-year downsizing project that it estimates will save the network more than \$900,000 a year.

counting software to contributor databases. CBN esti-

ged LAN more

IBM and Computer Associates," said Paul Flanagan, CBN's vice president of information services, citing the general ex-

from \$570,000 down to \$120,000 yearly," he said

CBN's LAN supports more than 625 users and ap servers, running applications such as office productivity and personnel as well as the contributor database. It uses Novell, fac.'s NetWare vd.11 as its operating system. Client PCs are mostly MS-DOS-based, though there are a few Wisdows systems. Users log in and choose applications via cus-tomized menus built with Saber Software, Inc.'s SaberMeni ftware. Clients are connected via thin Ethernot cable to a Fiber Distributed Data Interface backbon

CBN receotly moved its last and largest app SG-byte database of contributors' records, off its Hita-Data Systems Corp. 908 frame and over to its LAN. CEN

now plans to sell that mais In addition to the \$450,000

savings in software licensing will save it \$110,000 in has ware maintenance and or ons. "We won't need nearly as nany people doing inpe backup and the like," Flanagan ex-

staff via attrition through or department plans to cut only a few contractors and one people from its pay

To move the contributor programmers had to write a saction processing engine to

nage the Microsoft Corp. ForProduta "Originally, we planned to use Sybase as the back-end DBMS, ProOfro wasn't designed for 8G-byte databases, Fan-nari said. "We thought when Microsoft bought Fun?ro they would make it work with Sybase, but we couldn't wait any longer, and we had done so much in FooPro we just went d and built our own engine."

Microsoft demos fax integration By Michael Vizard

pense of host-based processing and fees vs. costs for LANs.

Microsoft Corp. receotly demonstrated an implemen-tation of its Windows at Work software running on a Ricoh Corp. fax machine and promised to integrate devices running Windows at Work with its peer-to-peer network services. Separately, Microsoft an

wireless support to its re-mote mail client software. "We weren't the first to nce a wireless client, but we are the first to ship it," said Mike Maples, exec-

ntive vice president.
The integration of Windows at Work with Windows

crosoft Chairman Bill Gates enised that it will allow ers to exchange editable documents by fax transmis on. Currently, users can send only hit-map images

Windows at Week was designed to provide a grap al interface to office equipent. On the Ricoh fax, the fiware provided an interee to an loop that co ounced that it has added rod multiple faxes to a list of people, encrypt a fax for arity purposes or program the fax machine to smit at certain bours to

lephone rates. By linking these devices

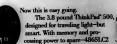
Three parts
The CBN contributor database now resides on three 486/3
MHz. Compaq Computer Corp. servers — one decicated to transaction processing, one to the master data tables and a third to handle large selections and batch sweeps of the database. The transaction processing server uses a tab driven, list-directed process to route requests to the data base itself, roll-back and roll-forward safeguards ensure data integrity in case of midtransaction failure

including re-engineering time, the CBN staff com the database project in 20 months. Funari attribute speedy completion to a limit on the re-engineering stage. "When you move applications, you have to identify the changes that have the most payback to the users and do them but ool get trepped in making every little change someone suggests." The next

one suggests, 'he said.

The CNN staff said they had no quakma about the reliability of their LAN platform. 'We only tolerate to 'Nh downties' to not if bloom-bed, other the control to t are advantage of lower

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Hard diel: 851/18 or 1781/8	
Price: \$1,800 kg	

Human

NCR boxes

CONTINUED FROM PAGE 53

the mainframe via a cluster controller, a kindgy process that prevented host and local sessions from running on the same

server.

The server conter has also helped John Lochow, vice president of systems, retain productive staff members. Since the enterwise staff members, showed the server was designed like a mainframe conterwise the staff of the staff staff. (Alt code employees who had tended master mainframe consolers and retrained them to handle the accrete data! center. The superservers also connect the roughtly 5000 FCs in the home office

with the mainframe, running data over a Bher- optie backtone. Lockow said be has bigger plans for the NCR mailiprocessor. In each of its 48 major branches the company wants to install a 4360 that has a single Puntium chip and runs Sybase, Inc.'s Sybase data hase, The NCR box would it into IBM PC Co.'s Periopal System? Model 56 that sais as the branch server.

This configuration, now in pitot stage, would give ONA branches "the ability to go to the central databases on the mainframes and query against that data, gaining instant access to it." Lochow said. "Ourreatly, they can look up any piece of data they want, but to get a query or a report they have to go to the development.

opment community to write it.

Long-term measure

Long-term measure
While putting the NCR boxes into the
branches has a solid justification today,
Lockow is betting it is a good move for
the future as well. He said be thinks Novell will eventually meld NctWare with
Unix, and CAA, will then add processors
to the NCR boxes to handle its server
needs in the branch offices.

needs in the branch offices.

"The NCR is a design point. It gives us something we don't have right now had not also offers us a potential sext siep,"

Lockow said. He said NCR's strong size as ment of direction to the said NCR's strong size and sext size, and the said NCR's strong size of the said NCR's strong size of the decidion and to buy Bib v(Scruz 205 size preservers, which, for instance, did not include Novell support until this year.

"NCR stated their architecture and de-

sire for interoperability and coexistence with other architectures betier than IBM." Lochow and. "IBM our primary vendor, but we're doing this with our eyes open. [While] IBM is improving at [comnumicating]," it needs to get better.

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DG adds tools for Aviion servers

By Craig Stedman

Data General Corp. is developing distributed document management and workflow capabilities for integration into Uniplex Ltd. is OnGo office groupware suite, which DG recently introduced for use with its Avison line of Unix servers.

William Zastrow, DG vice precident of imaging and office systems, said the enhancement's should be added to the company's AV OnGo offering this fall. The document management tools will also be hult directly into Unipiec's own OnGo code in 1994, he added.

Ronni Marshek, an analyst at the Petricia Seybold Group in Boston, said DG appears to be trying to III boke left in Or.
On at the enterprise level. Unlight to has been "feeralded a lit" in its own development work on the product, abe widd.
Do will ship AV Onto to Mott beared clients this month. Windows ellempt, port, which it also developed, shoufd be added in the fourth quarter. Zast rough OD date plans to market Wegelferder Corp.'s rival Worldfreder trye 4.0 eof: ware when that gets Units dupper to extract.

WHY THE WORLD'S BIGGEST DATABASE COMPANY WANTS CONTROL OF YOUR BUSINESS.

Franco Vitaliano

Pumping up PC iron

The forthcoming 100 + MIPS "PCe" based on Pentium, Mips and Alpha chips are going to forewer transform your organization. When networked together, the collective power of just several of these pamped-up PC systems will surpasse even your biggest and mightlest bunk of mainframe iron. Soos you will be able to buy these "PCe-or-steroids" for irons than

55,000. In short, the era of the "distribut ed PC mainframe" has arrived. To innore this magnum load of collecthre computer power is to doom your organization to strategic and competitive obsolescence. To take networking to the opportunity, your downsizing mind-set needs to expand well beyond embracing just client/server SQL. You must now consider the strategic implications of bring ing unbazed of amounts of cheap computer power straight into your departmental LANs.

mental LANs.

But how do you implement and manage this newfound departmental power with the same level of control and security as your traditional big iron? You could, for example, dedients a cluster of low-cost machines as distributed processing farms. If so, using Microsoft a Windows NT or a version of Unix such as Novell's UnixWare is just fine.

The control of the co

in a loosely coupled way.

Conversely, forget about remote procedure calls for setwork parallel work, as they are inherently synchronous—i.e., the overall activer's computation can haug while one node blocks. Ditto, forget network-shared memory schemes: As you add more nodes, they will quickly saturate your network bandwidth.

New administration Once you have downsized:

frame jobs, you have to idaminister the save systems. You will absolutely selesions type of software to estimatically ferrets out life network CPU-cycles, and also a methodology for fairly allocating these resources to prevent a single greedy power user from socialing up erery network cycle in sight. You will also med high-level cycles in single; You will also med high-level cycles in seagery to su pervise and sociality like applications on your distributed for estaffarms.

our distributed PC mainframe.

Here, the new SNMP-2 protocol will
robably come in just as handy for monioring distributed applications as for
namaging network devices. Likewise,
the greatly enhanced security features
(SNMP-2 can surely be extended to in-

of SNMP-2 can surery or excession to include applications.

Or consider using the new RSA-based digital signature security systems that are a ow coming to market with support from Novell, Lotus and others. Besides securing documents and E-mail, digital signatures can be used for an-

noms.

Lastly, your distributed PC intilitranes most oretainly need distributed tile across such as NetWare 4.0, NT Advanced Serve or the Intest Banyan Vines release. The perfect operations downstring marriage will come shout by mating your distributed PC insinframe with one of those network operating systems and several gignbytes of fast, cheap to 12.1.

So, as the saying goes with respect to this sudden abundance of cheap new cycles: Use it or lose it.

in distributed computing.

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Automation preserves jobs at manufacturer

ABBLANGCITY, TENS

shobes will argue that aut tion has stolen thousands of jobs from U.S. manufacturing workers in recent years. But unlike many of its peers, State Industries, Inc., a \$350 million water ster manufacturer, has managed to rein — and even create — jobs through the savey use of technology, including information sys

By 1965, most of State Industries' competitors — including A. O. Smith Corp. and Rhoem Manufacturing Co. — had moved their nufacturing plants to Mexico, ere the labor rate at that time was approximately 75 cents an hour, or one-tenth the cost of labor here. To remain competitive, State Industries had two choices: move its many facilities. its manufacturing plant south of the border and lose most of its 2,000 employees or automate its

mpany would have to design a range water beater because its dating models did not lend them

selves to automated production. So State Industries developed a lead ing-edge product and kept its work force intact. Almost four years ago, the comfacturing the Duron waeater. Unlike older models, the Duron is made from two, rather than three.

steel pieces and is lined with a plastic te material. The single-weld design and composite liner also make the ron tank virtually leak-proof because sediment cannot reach and corrode the arted steel.

On the Duron manufacturing line eight workers oversee the robots and other automated devices that manufac-



Robots produce a new type of water heater and rive their marching orders from an RDBMS

ture 1,200 tanks per eight-hour shift. That compares favorably to the produc-tion lines for the older-style glass-lined and porcelain tanks, which require 75 employees to manufacture 1,000 tanks in

une period. The Duron robotics and automated de-

server installed last month, rups on an Informix Software, Inc. OnLine 5.0 Unix

relational database man eat system. The server connects to an IBM 3000 mainframe over a

uct requirements file and then uses informix database applications to scho ule production. The RDBMS downloads instructions to the robots, laser welders and other devices over an NCR-designed fiber-optic lo-cal-area network. The rebots and automated devices receive instructions via RS-252 ports

3270 link to receive a prod-

The NCR \$450 server replaced two NCR Tower 750 machines. A single server has supplanted the minicomputers for several reasons, according to Michael Garrison, State Industries manufacturing and indus

triel engineering manager "Because the NCR 3000s [made obslete) the Towers and since NCR said there would be no further development of the Towers, it seemed logical," he said. The single server will support a second Duron production line that went live

vices receive information from an NCR Aug. t. Annual maintenance for the serv-Corp. 3450 multiprocessing server. The er will cost State Industries about \$10,000, compared with \$15,000 for the two Tower systems, Garrison said. But

drive the decision to scrap the Towers, "It's easier to write programs for one machine instead of two, not to mention the administrative netits," Garrison said.

Since the company begre menufacturing the Duron tanks in October 1989, State Industries has shifted most of its line workers to me. facture the older-design tanks. It continues to pro-

duce as many of these as it eduction of a new did five years ago. In fact, the company has added 100 employees to its work force WINCE THEO And though State Indus-

tries will phase out produc-tion of its glass-lined resideptial tanks, Garrison said, it will retrain its line workers to avoid involis. Garrison insisted that the work force would remain in

tact, except for attrition and retirement "My primary function has been to instal automated equipment, and in my 17 years here, we've never inid anybody off due to enterestion, and we don't intend to," he said. "Technology in and of itself does not have to reduce jobs."

SNMP added to Ethernet adapters

A recent round of vendor in ons added speed, easier installa tion and Simple Network Manageent Protocol (SNMP) capabilities up Ethernet adapter cards

The improvements let informa-tion systems managers eice over more out of Ethernet technology. For instance, SNMP capabilities in new Ethernet cards from Ungermann-Bass, Inc. let network managers at the Physicians Health Plan of North Carolina in Gree boro detect lost network connec tions in file servers, gateways and print servers before end users light up the phone," said MIS

Recent developments include the ed on SNMP amount -110 --for its MasterLAN line of Ethernet

ers. Including the managethe host frees up to 40K bytes of bost memory, according to a com-pany spokesperson. The cards * cost \$375, and customers can re-

Standard Microsystems Corp. (SMC) in Hauppauge, N.Y., anpters. Using a technique that diately forwards packets of data before they are fully received into the adapter's buffer, SMC re-duces data transfer times. However, critics of the \$129 card said that method eliminates error-checking functions and could fail to detect

*Aecton Technology Corp. said it will ship this mouth a line of adapters, priced at \$100 per card, that rease performance without

inating error checking. Accton said its acceleration method es performance by incorrating the network controller. s interface and transceiver into a single ohip

ngston Technology Corp. in sin Valley Calif. shipped a 32-bit Ethernet card for Extended Industry Standard Architecture bus computers. The \$250 card us-es a technique called Direct Bus Mastering to transfer data directly to and from the host system mem ory and improve operating speed

Lotus Development Corp. has ant availability of CC:Mail for OS/2 Workplace Shell Version 1.0, an object-oriented version of the company's electronic-mail program.

The version features multitasking cap ties and an object-oriented file management system. The E-mail environment inch new graphical user interface hased on the Workplace Shell; a draft folder for storing mea sages in progress and a trush folder for retrie ing deleted messages; and spell checking A t0-user pack costs \$345; a 25-user pack is

\$845; and a 100-user pack costs \$3,295. ► Lotus 55 Cambridge Pkseu. Cambridge, Mass. 02142

(617) 577-8599

Network Communications Corp. (NCC) has seed software enhancements for Versi 4.1 of the LANalyzer Network Analyzer, NCC's local-area network diagnostic soft

Running up to six times faster than Version 3.11A, LANalyzer 4.t is said to be the first and only analyzer capable of testing and analyzing NetWare 4.0, according to the company. Other features include an automatic name generator, post capturing filtering and ounced protocol decodes. Prices start at \$1,350. Network Communications

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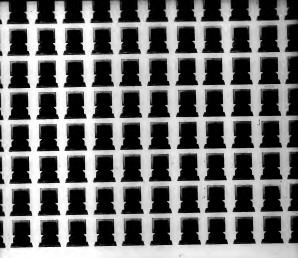
Product shorts

Lawson Software has announced the Open Enterprise Release, a client/server version of the Lawson Human Resources System. The system comprises Payroll, Personnel Adminis-tration and Flexible Benefits applications and runs on an assortment of client systems, hard were platforms and relational databases. Cost Pricing begins at \$24,000. Lawson Software

Minneapolis, Minn., (612) 379-2833.

JetPorm Corp. has announced plans to ship
a Macintosh version of its JetPorm for E-Mail, a multiplatform, intelligent forms fill-in product that includes a set of work-flow tools and that can be used with standard electronic-mail sys tems. The first three Unix platforms it will sup port are Sun Microsystems, Inc.'s OpenLook BM's RISC System/8000 and Hewlett-Packard Co.'s HP 9000. Cost: ranges from \$495 to \$1,495. JetForm, Waltham, Mass., (617) 594-3026.

CARP Systems International has en-nounced APS:Enterprise, a redesigned version of its Advanced Planning System that operates on Unix workstations. The product now offers an object-oriented, client/server-based management decision support system for logistics and husiness planning. A Windows-based ver-sion called APS:Solo was also introduced. Cost: An APS:Enterprise license starts at \$95,000; APS Solo starts at \$25,000. CARP Systems I terrational, Lexington, Mass., (617) 862-6768.



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Asynchronous Transfer Mode

IBM fills out plans for moving networks to ATM

WRITE PLAINS N N

Adding a splash of context to the high-level Asynchronous Transfer Mode (ATM) bin It laid on the table last month [CW, July 19], IBM has provided some details about bow it will migrate users to enterprise networks destined to

one day include ATM The ATM plans complement IBM's broader sebeme for transitioning Systems Network Arehitecture (SNA) shops to distributed, highspeed computer networks, analysts said.

IBM views frame relay as a functional and technical stepping-stone to ATM networks, businesses can connect their gear to ATM localarea networks via frame relay with a mere software upgrade, said Bill Conklin, IBM director of networking subsystems. So the company plans to add frame-relay support throughout the next year to the 3172, 3174, Application System/400 and BC-based DOS bridge

ATM is the end result, but most custon won't be there for years," said David Passamore, vice president and service director at Gartner up, Inc. in Stamford, Conn. "What will be of

fered by carriers will primarily be frame relay." For the near term, Passmore said, users can put a frame-relay interface on their equipment then just change the interface as ATM extends

from the carrier backbone to their premises.

anwhile, IBM has mapped out the following roles for its existing SNA-oriented gear in to orrow's networks: ·The 3172 cluster controller will gain a

frame-relay interface within the month and eventually get interfaces into bigh-speed local and remote networks such as ATM, T3 (45M bit/sec.) and Switched Multimegabit Data Service. OS/2 Communications Manager software will be integrated into the 3172 this month. •The 3174 data concentrator will gain in ed connection speeds from today's 64K bit/sec. up to 128K to 256K bit/sec. via new adapters. It will also get frame-relay and Synchronous Data Link Control interfaces in the form of software upgrades to the adapters.

•The 3745 front-end processor is a candi for the 25M hit/sec. ATM under development at IRM for local connectious only Conklin also said IBM will eventually allow

users to choose where they want their multiocol routing to take place: in the smart wiring hub, a stand-alone router or in IBM's Transport Network Node, a wide-area ATM switch due out in late 1994

Meanwhile, he indicated that IBM's 6611 router would not be the last router product from the company; the device is not a candidate for an ATM interface.

4.0 put to the test

By Flinsboth Horwitt

National Grocers Co. is not one of thos wary firms that automatically holds off

buying any major new release that endsina".0." The grocery chain became a beta-test user and then an early implemen-tor of Novell, Inc.'s NetWare 4.0 be-

cause "the bumps and gittebes you get with new releases are minor compared to what they give you in terms of ser ing the customer," said Robin McCubbin, network planning analyst at the company. The rollout of the new version is expected to be complete by Oc-

Indeed, the grocery store chain already has some experience on the bleeding edge of Novell's network operating system: "We put in 3.0 when it first came out because we needed to get past that 100 connections (per serv er limitation]," McCubbin said. "Otherwise, we [would have] had to put in a second server."

The decision to implement NetWare 4.0 was basically a po-brainer, according

Grocery chain benefits from early NetWare move to McCubbin. One feature of the per version that was important to the gro-cery chain was the ability for network administrators and users to access a

up of servers with one log-in, innd of one server at a time. "We have 500 mers in this building alone and three servers, so for them to get at all resources with one log-in was a major

in addition, NetWare 4.0's disk oon pression and hierarchical storage management were important to National Grocers as a way to "take the sure off our disk requirements, eCubbin said. The firm's servers now hold 3G bytes or more, and the new features save it from having to migrate to 4G bytes.

Easier implementation So far, McCubbin and bis group have

found implementing NetWare 4.0 a lot less troublesome than commonly reported. "A jot of people say the global directory takes a while to get hold of." McCubbin said

His group did spend two weeks getting up to speed on the NetWare Direc tory Services and its treelike directory Nat Ware 4.0, page 63



Novell unveils host/LAN control

PROVO UTAN

Novell, Inc. has unfurled software that will altow users of its NetWare for SAA product to monitor, maintain and control NetWare-to-IBM host sessions from the same console that oversees the rest of their interconnected local area

The product, called NetWare for SAA See vices Manager 2.0, is an enhanced version of NetWare Communications Services Manager a set of NetWere for SAA management atilities that Novell released in Pobrusry The name has been changed to reflect the

product's incorporation into Novell's NetWare Management System (NMS), a graphical user interface-based network management platform based on Windows. NMS was designed to allow neers to automatically map, monitor, manage and control local or remote networ devices and servers.

NetWare for SAA servers will now appear as ms on the NMS copsole map, with their status easily accessible. Customers can also view Net-Ware for SAA elects in the NMS Alarm Monitor window "It is vitally important that network managers know who their mainframe users are, what their network address is, where their





ection server is," said Be Harmitane control were in the Harmitane gray. Novel's product manager for NetWare for SAA Services Manager provides a single, centralised point of management and control over remote LAN-to-

NetWare for SAA users, especially th remote sites, said they were pleased with the product. "We have NetWare for SAA installed in product. "We have retware for such measured mur branch offices; once we can use the Net-Ware Management System installed at our cen-tral site to easily troubleshoot and manage all of those remote connections," said Gem Bow-en, a systems analyst at Buck Consultants, an employee benefits consulting firm in New York Novell said NetWare for SAA Services Man

ager 2.0 is now shipping at a suggeste price of \$5,495. It comes bundled with a ru

Applications offer central net security

By James Daly

As any network security administrator can tell you, the distributed functionality provided by any client/server setup also means you distribute your points of vu-serability. Fortunately, a pair of new ap-plications from PC Guardian and Trend Micro Devices, Inc. were designed to pro-vide centralized security control for net-

San Rafael, Calif.-based PC Guardian has just announced an upgrade to its Da-ta Security security package that in-cludes the Novell, Inc. Interface Module. The added component provides

both centralized control of workstation access and a single log-in capability to the workstation and serven PC Guardian of-

In recent years, security p have faced the Sisyphean task of providing the same quality of service to more and more octworked users. "As our LANs have grown, so has the complexity of their administration," said Mark Cadac, a security analyst and Interface Module beta-test user at Air Canada in Moutreal. 'We still have the same num ber of administrators, but now they have

The module works by allowing the workstation's access control functions to be managed and controlled by the No vell NetWare Syscon utility. When the workstation boots, users eoter their Novell user name and password. Once they gain access, they can then log in to the network at any time without having to recuter their user name and password. As a result, users do not need to remember multiple user names or passwords.

tious that are controlled and adminis-tered from the Syscon utility also enhance security by demanding periodic seword changes and a minimum pass

can manage all access control functions for the network from a remote location using a single interface and program provided by the Syscon utility.
The Novell Interface Module or

ly synchronizes the user name and pass word on the workstation with the user name and password on the network. It the network is down or not accessed, the user is still required to enter a val-

id NetWare user name and pass word to gain access to the work-The suggested retail price of

Data Security Plus with the Novell interface is \$124.95.
In addition to providing cen

curity control, the StationLock LANPack from Torrance, Calif.-based Trend Micro offers virus protection, access control, ecovery control and encryption. StationLock's NetWare Loadable Me ule server component allows a network administrator to set the configuration

for each user or group of users, assigning node oumbers and machine name relaonships for access controt, Trend Micre The application also contains its o read-only memory BIOS, called X-DOS, which takes control of the workstation system prior to loading any operating

system, thereby preventing all possib StationLock LANPack is scheduled for release in the fourth quarter. Pricing will be \$89 per workstation and \$240 for the The workstation access control funcserver component.

Briefs

ATM cards on way

Network Peripherals, Inc. and Syn-Optics Communications, Inc. have Optics Communications, are agreed to develop sciapter cards for agreed to develop sciapter cards for agreed to develop sciapter Mode net-Asynchronous Transfer Mode net-works. Network Peripherals plans to deliver the eards by January 1994 for all cable types. Pricing was not an-

Unix support

Ore., has announced Unix support for its network analysis product, Pounda-tion Manager. Availability is elated for tion Manager. Availability is slated fo the fourth quarter. The Unix version will be integrated with Ungermann-Base, Inc.'s NetDirector network man

added a Backup Link feature to its Trakkee internetworking monitor, which is said to use out-of-band sig-naling to give users access to Trakker network management information — even during a failure of the local-area petwork where a given Trakker work

LAN monitoring program

The Certified Network Expert organi zation founded by Network General Corp. and Hewlett-Packard Co. reorp, and newwest-reason to re-sently began registration for network-nangers who want to be certified for pecific types of LAN monitoring tools and skills. For Ethernet and Token ing, the examination is \$398.

The two vendors said they have re-

ved more than 1,000 calls from net rk managers and technicians.

acrement platform ompanies including the AG Group ne., Microtest, Inc. and Wandel & G remann Technologies, Inc. recent Concord enhances monitor



Wireless nets not all alike

Carriers diverge in coverage, capacity, design

LEXINGTON KY

Information planners often do not care how a technology works as long as it does work. However, understanding an archiwork. However, understanding an archi-tectural design can sometimes belp cus-. This could lesses a signal's chances of tomers select alternatives more attaned being picked up, but it increases overall to their applications.

This is especially true in choosing a wireless munications service, as today's networkcific wireless modems

carriers. And wireless network service providers have different strengths, reflected in their network designs.

Ardis, for instance, employs a trans-nission scheme optimized for reliable in-building coverage, while packet competitor RAM Mobile Data and cellular carriers focus on network capacity: Ardis' aim is to deliver data deep with

in buildings. Because steel walls and oth er obstacles can derail wireless signs Ardis increases the likelihood that a givon transmission will reach its destination. Tom Berger, Ardis' vice president of radio network and product technology. explained during a recent conference

The network does this by transmitting signals to multiple base stations - what analyst Rob Rich at Dataquest, inc. in Framingham, Mass., called the "brute force" method of building reliability into

wireless networks. Showering base stations with messages simply increases ing a connection. RAM Mobile Data and the cellular car-

riers, on the other hand, send a given transmission to just one base station.

network capacity by reducing broadcast traffic. A longer-term issue with

the Ardis network is that, untike RAM Mobile Data. there is no guarantee the company will be able to add

bandwidth down the road. One day it will have to depend on existing spectrum lisees to "sell" capacity to Ardis, Berer acknowledged. RAM Mobile Data was able to license

directly from the Federal Com tions Commission a significantly larger chunk of spectrum, which it can deploy as demand warrants.

Coveragewise, while the Cellular Digital Packet Data (CDPD) group has released Version 1.0 of its protocol for sending data over the widespread analog lar network, it could take two years for CDPD coverage to equal that of the ket networks [CW. July. 26].

Andrew Seybold, editor of the "Out-look on Mobile Computing" newsletter, explained that McCaw Cellular Communications, Inc. plans to implement CDPD on just one channel out of six per cell, and only on certain cells by June of next year.

cally allocate access to their files and

create subdirectories. McCubbin ascribed his company's comparative lack of problems with Net-Ware 4.0 to the fact that it has pretty ch gone by the book in implementi

"We don't try to do wild things with scripts of network configurations in or-der to get an extra .03% in performance: it's when people do that that they get in trouble," he said.

pport needs

The ope area that Novell needs to work on with its new enterprise-oriented system is disseminating information and support to users, McCubbin said. "When you buy software for your IBM

mainframe, once you pay the becase your updates, changes and patches come antomatically to your deak. The account nager assigned to you comes in once

That level of support does not yet ex in Novell's organization, even for major accounts such as National Grocers which runs a 1,000-station Novell network, McCubbin said However, Novell said it is working on

getting its support up to the level that goes with an enterprise networking ven-dor, he added. "And they are getting e cross-pollination from their part-



CONTINUED FROM PAGE 61 structure. "Initially it was tough; if you

try to take what you have [with v3.11] and manipulate around the differences, you will be in trouble."

Particularly challenging for the group was how to set up a directory structure that would give users easy access to whatever resources they wanted in the enterprise, without having to keep shifting from one directory "domain" to an-other McCubbin said.

The approach settled on was to fit "the largest unit of your organization you ean" into one domain. Users could then access one another's resources without shifting to a different organizational context, as defined by the directory.

The idea was to avoid taking up network administrators' time with updating the directory to reflect users' moves and changes between divisions and departments, McCubbin said. Someone makes a departmental move about once a day at any 1,000-person division within National Grocers.

The structure chosen by the chain comes with a caveat, however: Users must take responsibility for controlling who accesses their files. McCubbin's group is teaching users bow to dynami-





Enterprise Networking

Hewlett-Packard Co. has in two Windows-based software packages for managing local-area networks. According to the company, HP's Open-View Workgroup Manager/Windows and HP OpenView interconnect Ma er/Windows were designed to reduce the

effort and expense required to manag LANs as they expand The HP OpenView Workgroup Ma down offers workgroup-level network management for PCs, printers, hubs and workstations. It can automati-

ally discover what is on the network and raw a hierarchical network map, displaying the network topology, the company said. A superset of the capabilities of Work-group Manager is provided with Inter-connect Manager, maintaining the same

interconnect Manager performs rout-er configuration via a Telnet capability.

monitors and controls bridges and row ers, and provides real-time trend analy-HP 28686E OpenView Workgroup Ma

ager/Windows costs \$2,000, and HP 27236E OpenView Interconnect Manage Windows costs \$4,000. ► Hewlett-Packard Hanover St. Palo Alto, Calif. 94304

(415) 857-1501

Novadigm, Inc. has announced the Nov-adigm Enterprise Desktop Manager (EDM), a fully integrated systems man ement solution for managing the depicyment and distribution of enterprise applications, including 3270, elient/serv-er and frontware on the desktop.

EDM consists of three distributed comsts. EDM:Manager controls desktop infigurations, autorprise application nests and policy reistionships in a central database repository. Enterorise management functions are provided by EDM: Client, an enterprise desktopresident facility that works on the deskop in conjunction with EDM Manager EDM:Administrator is a systems man ment facility that enables users to figure the EDM: Manager and distrib-

te management services to authorized ops, the company reported. EDM costs \$100 per user, \$1,000 per adsinistrator and \$20,000 for the enter-

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Attachmate Corp. has announced Extra for OS/2 Release 1.0, a desktop-to-host

The new software connects OS/2based PCs to IBM mainframes and is fully ible with IBM's latest 08/22.1. The company said it provides a work ce shell user interface and that Extra for OS/2 allows up to 26 simultaneous host sessions and supports 3270 screen sizes up to 27 lines by 132 characters.

The product was designed for clint/host processing and can be configared to connect to the host in an assort ment of ways, such as local-area network gateways, Token Ring, Ethernet 802.2 etions and 3270 coax links. Extra for OS/2 costs \$425.

3617 131st Ave. SE Bellevue, Wash. 88006 (206) 644-4010

Jeffrey N. Fritz

Falling for a technology



orking fdon't know if the implentation of an en terprise network has but it would make a great thesis topic. Here is the pres Every new enterprise networking tech nology goes through a sociological cycle

that is not unlike dating. It's no differe from what happens when you eatch the eye of someone interesting across the The relationship has six phases:

Phase one: Eves meet for the first tir This is the introduction of the new technology Four-color product literature ap pears. Marketing leaks product specif rations to the media and certain key users. The specifications astound the technology's own designers. Standards bodies, attempting to lead the implemen tation, begin the standards develop

 Phase two The couple dances and begins to fall in love. This is the hype phase The idea is to create excitement by pour ing out semitruths and outright distors disguised as facts. Hype flows free ly it flows from marketers, from early adopters and from the media. The sales force is deployed to promote the vapor-ware and secure a leading image in the marketplace. Standards bodies are in a

· Phase three: They look closely at each other. "Oh my gosh! He'she has zits!" Phase three is referred to as the panic phase. Alarms are sounded by rival teel nology vendors that fear being shut out by a perceived rush to the new techn ogy. The rivals have fallen victim to the hype issued in phase two. Alarms are sounded by never-to-be-users (so they think) who fear losing out if the new technology makes it.

Alarms also come from the me ure listening to never to be users and rival technology vendors. Early adopters read the negative press and, fearing they backed the wrong borse, become defen-sive and lose confidence. The product ap-pears in test deployments. Standards hodies are still in a fracas.

sase four: Prophets of doo the relationship will never last. Phase

on that newer technologie (which, of course, they will develop) sigal the death of the technology. The media reports the technology will never make it. Potential users are shaken and me unsure of their implementation strategies. (Interestingly, early ado ignore phase four entirely.) Early prod-ucts hit the market. Standards bodies

· Phase five: I'll take him/her, zits and phase. The media is bored with the too ogy and has stopped reporting on it. The sales force is bored with th ogy (but still does not understand it). Users finally realize the technology may not be perfect (as initially advertised), but it does fill a need. Standards bodies e bored and move on to other tech nelogies. Standards are still not set.

fortable as old shoes. Phase six is the product phase. During this phase, the product and its related products are hable off the shelf. (it is easy to tell when a product or service has reached phase six: You can buy it at Radio hack.)

Here is bow I see today's network tech sology lineup. ATM has the honor of being both in phase one and phase two, SMDS is in phase three, FDD shares phase four with frame relay, and ISDN is in phase five. Only modms have reached the coveted phase six. If you want to watch the cycle, pick a

going technology and follow it. Watch ATM, for example, Listen carefully to the vendors that will sell it and those that think they won't. Read the media coverhrough each of the six phases. Pay parters and antagonists. Watch carefully and you'll see the cycle. It happens every time and is fun to watch. Although entertaining, the new tech ology dance does have a dark side. There is a tendency to be sold on what the marketers want, not on what the usneeds. The user can be misled into avoid ing certain technologies or falling into ers. Armed with a good dose of reality, users can protect themselves from the technology dance. The key is to separate

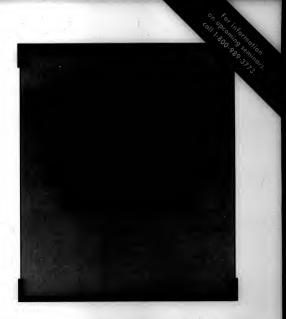
fiction from the reality of the product or True love in a marriage occurs when both partners realize they married a per-son, not a fantasy. The same holds true in the new technology dance. Fall in love with what the product or service can acally do for your enterprise, not what you to believe it can do

The most amazing part of the technol-ogy dance is that it is cyclical. So even as we begin the dance with ATM, you can be sure that deep inside some ish ere, the technologists are hard at You and I don't know anything about it yet, but, believe me, we soon will.

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U.N. group globalizes data modeling

oting the social and economic development of Third World nations is a noble cause. But carrying out that mission from more than 100 points around the

globe is no easy task. Such is the challenge facing the Unite Nations Development Programs (UNDP), UNDP is the world's largest mul tilateral grant development assistance mization: It supports 6,000 projects in 174 developing countries at any given time. The funding agency acts as the chief administrator of \$1.7 billion for

projects aimed at belping underdevel oped countries achieve self-reliance. Of the UNDP's 6,000 staff member 0%, or 4,800, are located in the field. Over the years, UNDP has belped on tablish systems in each of its 120 field offices. Most of the 3,000 desktop devices used in the field are IBM-compatible PCs



The UNIDP Here York staff (I to r): Renjay Yin, Title Ch'ter

that run Cobol-based financial applica-tions. The field offices administer fund-ing for projects that are handled by U.N. agencies such as the World Health Orga-

But most of the UNDP field office sys are independent of one another and o not communicate well, according to falcolm Chisbolm, manager of data adnate well, according to

To better integrate these systems while reducing redundant data entry, the UNDP last year embarked on a project to velop a corporate data model. The oject, which has cost the UNDP apnately \$500,000 after 18 months of oment, was designed to provide a cal framework for a corporate datasigned for that database. In addition, the corporate data model would allow UNDP to retain its existing field systems.

Date modeling, page 74



HP plans to introduce large Unix servers this fall

Users reluctant to pay big bucks for big iron

By Mark Halnes

PALOALTO CALL Some recent modifications and price cuts by Hewlett-Packard Co. to its Unix line of minicomputers do more than un-derline the resistance HP has encountered from price-wary users balking at rading to the company's big iron. HP's moves are also intended to clear

room for a fall introduction of HP's largest-ever Unix systems, which will offer twice the number of processors and incorporate more powerful versions of HP's Precision Architecture-RISC chip. HP introduced its Corporate Busines servers as the centerpiece of its maine-alternative strategy a little more than a year ago. in the last month, it sinabed prices almost in balf — from \$668,500 to \$360,000 for a four-processor version, for example - and began including software, such as databases, that previously cost extra.

Around the same time, HP rolled out more powerful versions of lower-priced Unix machines, giving power users a less expensive option to the pricey Corporate Business Servers [CW, June 28].

The company confirmed that it plans to bring out more powerful machines "later this year," and analysts and users said they expect those machines to be priced no higher than the old Corporate ne Servera

The new machines will bouse up to ight processors, compared with a maximum of four on the current Corporate Business Servers, which are also kn by their old code name, Emerald. They are also expected to house the 7100 version of HP's PA-RISC microprocessor; today's models use less powerful editio

of the chip. Emerald got off to a rocky start last year when HP encountered manufacturing prob s tied to one of its parts suppliers. which HP has never

Once HP resolved the problem, it regis tered brisk shipm of Emerald systems HP likes to boast that it delivered 200 by the end of last year But

the company is retiout shipments during the first half of this year, and all indications are than high-end business has slow

Ready for more power
The cut in orders seems to be the work of The cut in orders seen a double-edged sword. One main reason,

according to Salomon Brothers, Inc. anabut John Jones, is to set the stage for a fourth-quarter assouncement of the more powerful systems. They're posturing for a rollout of a

second round of Emerald products in the October/November/December time

mit to a specific time frame. Eric Fisher, principal at Fisher Syn ms Consulting in Groton, Mass., said be

ke HP will introduce the new systems re Oct. 31, which marks the end of the mpany's fiscal year. "They'll be looking for an end-of-the

year kicker," he said

The other fact poarently mitigating Corporate Busi-ness Server sales is user wariness over big ticket purchases conditions have not

many people are buy-ing \$400,000 machines, let alone \$t million machines," said S. G. Warburg & Co. analyst David

"There's nothing wrong with the sysm. It's what's wrong with the world," beeved Robert Herwick, an analyst at recht & Quist, Inc. in San Francis-"HP's strategy is targeted at IBM re-scement. That market is sort of stuck cause customers have been unwhat they want to do, and they don't al nys have the capital budget to do it." Gordon Kerr, Hyatt Hoteln Corp. sec ice president of MIS, further pointed out

Pisher agreed, pointing sut that be-cause the new midrange models use the 7100 processor, they could actually out-perform the Corporate Business Servers to International Confession of the Corporate Business Servers though the Corporate Business Serv uld still be more suitable for VO-int sive transaction processing involving

But while users have apparently b alking at buying today's Corporate

out the same price just might make a Scrence. Pisher observed. When the 7100 gets into the Emerald. hold on to your horses," he said.

ark Shirman, president of Inc formation Systems, Inc., a Norwood es., integrator, added to that as nent, noting companies that are con ring migrating from proprietary m rames to Unix boxes may be more til to make the switch if they trust the p

The more power that's there, the bet "The more power that a there, like de-prit is for them," Shirman said. His firm has been involved in many HP sainframe downsizing projects with matomore including Paccar, inc. Weyer-neuser Co., Minnesota Mining & Manu-

oring and Levi Stranes & Co. Software conversion offorts are a

ess tedions when they are from a mai ame to a large Unix box than to so

Re-engineering pays off at Cigna

PRILADELPRIA

After completing about one-third of a four-year project to re-engineer one of its nustomer service units, Cigna Corp. is beginning to see impressive results, inting a 35% rise in staff productivity through process changes, and it expects more gains through the use of new tech

Seeking to provide faster and bett response to customers' inquiries, Cigna combined what had been stand-alone mer service, billing, claims and other functions into a cohesive set of teams at its Voluntary Insurance Products Divi-

An infusion of new technology will aplement the team concept. Cigna re-ced its rigid IBM 3270-type terminals with an OS/2-based Token Ring local-area network running IBM's LAN Server network operating system. By year's and, the OS/2 system will include Win-dows-based visualization software deed to enable customer service repre tives to toggie between a slew of

Empowered with information from billing, claims and other departments, the unit's customer service representatives were able to process 35% more inquiries in the year following the re-negineering than they did prior to the initiative, ac-

cording to Benjamin A. Tomb Jr., seni vice president of Cigna's customer ser-Furthermore, Tomb said the unit,

rhich bandles 30,000 inquiries per month, stands to triple its productivity once the Windows-based system and a new work-flow strategy are implemented. Eventually, he said.

he company expects DRIEM AND SOLUTION to reduce the costs of used to have to check with other servicing its insurdepartments such as billing to nce products by 65% nswer inquiries. The new system answer inquiries, the new sy allows them direct access to Though be declined to sclose what the setual payback would THE RESULT be, Tomb said be exets the information

imple stion to contribute to three quarte of the cost savings Tomb would not speculate on when Cigna is expecting a return oo its tech-

Such productivity gains, while starting, are not unusual. Most insurance firms are in the midst of re-engineering their customer service departments and one. United Services Automobile Associ ation (USAA), has made significant strides, according to Catherine M. Wes

ton, a partoer in the insurance consultant practice at Ernst & Young in Boston. Weston said USAA set a benchmark for

and pioneered the use of image technology at its San Antonio bendquarters in tho late 1960s. Insurers are taking cues from o

nies that do customer service well, including airlines and mail-order can companies like L. L. Bean, where a ques-

tion gets answered oo a first call," Weston said. ance products, which include group universal life insurance and

long-term care insure, have been a hot 35% improved productivity ticket for Cigns. The 65% lower cost for Class growth of 20% to 30% during the past four

years, and these rates are expected to continue, analysts said. To meet that growth while improving customer satisfaction and curbing the unit's escalati costs, an overhaul of the division's oper ations was necessary, actor

For example, in the past, when custom-rs would call in with a billing problem, a Cigna customer service representative would have to request and receive infor-mation from the billing department before returning the client's call. Cigna changed that by cutting out layrepresentatives are "generalists" who have been trained to handle new functions, including billing and claim

"Re-engineering has given me the opportunity to learn a lot more about the product itself and expand the knowledge of everyone else who works here," said inlerie Pasalodos, oce of Cigna's cus tomer service representatives.

Satisfied customers Before the re-engineering project be Cigna's "first-call satisfaction" levels wered at around 75%, Tomb estin But since streamlining these functions so that teams of customer repre-tives could answer nearly all inquir a first-call basis, call satisfaction has im

ed to greater than 90%, Tomb said. That compares invorably to industry stes, which analysts put at 30% to 90% To date. Cigna bas been able to achieve results solely through the transfer on of the unit — before any techn

deal changes have been put in pl Cigna's productivity gains and co eavings are expected to rise even more once new technologies are added to the un concept. At the heart of the system mb said, is a Windows-based visual ization software package from Easel Corp. resold by IBM. The package allows mer service representatives to tog gle between systems in other depart ts to gather account information are effect typhy

Tandem leans on RISC for growth

echnology

Tandem Computers, Inc. is betting on ced instruction set computing (RISC) and open systems as avenues of growth for the \$2 billion company, introducing a revamped RISC-b fault-tolerant computer line that analysts said could pete directly with general-purpose Unix servers from Hewiett-Packard Co., queat Computer Sys tems, Inc. and Pyramid

Technology Corp. Stop Himalaya computers will carry much lower price tags than non-RISC

na. Now it is trying to overcome a recent sales slowdown by focusion erall price/performance. It optimined its NonStop operating syste for Mips Technologies, Inc. RISC chips. boosting performance of the low-end and midrange NonStop machines by up to 30% and overall price/performance by up to 60%. The new high-end op Himalaya Kt0,000 mac vety parallel processor, has

Longtime Tandem users said they are happy about increased price/per formance and lower price tags, but

many said they have not yet considered putting Posix on their Tandem a. "Cost is going to be a big deal for us," said one Midwest user who did not wish to be med. He sald he is coo d that Uolx processors at his site will not be no reliable as the older Tandem machines. "Once we have more experience with

Unix systems, we will have e about whether Tandem's fault tolerance is easier to justify."

Hardware purchases Consolidated Freightways, Inc. has just installed four Cyclone/R machines to repince eight older Tundem VLX manes in its Portland, Ore., data center said Phil Seeley, vice president of istration and technology. It also purchased 48 CLX and CLX/R mid-

se processors that run Consolidated Preightways' image processing system for scanned documents. "We bought the CLXs that were coming off ree-year lease," he said. "The price

was attractive, it's good technology, and they're reliable." Seeley said be has no plans to use Posix.

The new Posix option, which will alwusers to write Uoix-compatible applications that run oo top of Tandem's proprietary Guardian fault-tolerant operating system is inter tract new sites. It is not a full Unix implementation unlike Tandem's Integrity line of Unix System V Release 4 servers. That contracts with competitor Straths Computer, Inc.'s offering of senarate VOS fault-tolerant and Unix System V.4 fault-tolerant versions of the same machine, both scalable.

However, analysts said the new Posix interface could broaden Tandem's appeal beyond the banking and telephone industries where its fault-toler-

ant system is already popular.
Clicat/server applications could al-so boost Tandem sales at new sites, analysts said. Tandem's new partnership with Unix System Labor (USL) will allow many types of PC and Tandem servers via USL's Tuxo transaction monitor, USL President Roel Piepersaid.

The NonStep Tuxedo software will en into be in teeting early next year and is slated to ship in late 1984, USL said.

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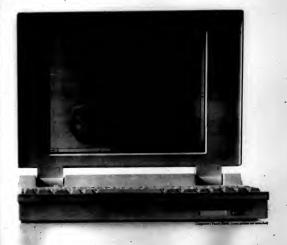
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Data modeling

CONTINUED FROM PAGE 69

marters systems on SQL under Unix and Xbase in its field offices. Once the data model has been completed by the end of this year, a field office in Bolivis should be able to share an administra-tive system with an office in Ghana.

It will probably take years before all of the field systems are brought onto the data model, according to Chisholm. Still, the UNDPhas made strides. For eco the agency plans to bring a full set of sys-tems from its Latin American field offices onto the data model by the end of this

"What we're trying to do is develo nysical architecture worldwide for all ald offices to build into," said Chisholm, o was unsure of UNDP's investment in

Central to the UNDP data modeling project is Erwin, a database design suite from Logic Works, Inc. Staff members at UNDP's field offices are using Erwin to reverse engineer data to run in Microsoft Corp.'s FoxPro application development environment. Meanwhile, systems specialists at UNDF's headquarters here are using Erwin to move data from a Comput-er Associates International, Inc. CA- system to a Sybase, Inc. 4.9 Unix RDBMS. The data model has been designed so ats is seamless, Chisholm

that file transfer between Unix or Xbase UNDP with a \$10 million information

systems hadget for this year, considered undardizing all its field systems on Unix and SQL to achieve complete integration, but'that plan would have been far too expensive and difficult to pull off at this time, according to David E. Joel, director of UNDP's Division of Management Information Services (DMIS). Joel said the agency will eventually make the sition to Unix, but it has not yet de-

If carried out properly, data modeling projects can be quite effective for end us-ers, according to Ronald G. Ross, edi-tor/publisher of "Database Newsletter," which is published by Database Rerch Group, Inc. in Boston. "A data model is the best way we know today to make that translation of what users want from the business and a physical impleation of that," Ross said.

Selling the data modeling concept to UNDP's management was slightly more challenging, Joel said. "The idea of data lysis and data modeling was somewhat foreign to this organization," he of "The concept that you would have

data-organized structure between systems hasn't seemed to reach most business people." But after explaining how data model-

ing could help UNDP better integrate its systems and cut down on redundant data entry, Joel and his staff were able to persuade the management committee to fund the project in February 1992.

DMIS began its implementation a month leter in Costa Rica. At that time. the UNDP hired a consultant to train its Latin American field staff to identify and one the best in each class of date applications they were running. Then using Erwin, the staff members learned bow to reverse-engineer their applies-tions so the data could be incorporated

into the model. These efforts should be buttressed by planned communications ents. Currently, 75% of the field off are connected to UNDP's bendquarters using BT Tymnet's Dialcomm electro mail service through dial-up connec-tions, according to Hossam Galal, who is

responsible for systems delivery at DMIS. However, the disl-in connecti will be phased on tan UNDP increases the number of field office local-area networks and connects them to its headozenters Currently, 30 field offices have ArcNet or Ethernet LANs running Novell, Inc.'s

NetWare operating system.

Wang program to offer imaging certification

By Craig Stedman LOWELL, MARR.

Trying to boost demand for the imaging technology on which much of its future rides, Wang Laboratories, Inc. has set up race, wang Laurentories, inc. mis set up a program to train receilers, consultants and systems integrators to design and install image systems.

imaging sales have grown mach more dowly than expected, and Wang blames hat in part on a lack of imaging expertise

in the market, said David Goulden, vice resident of marketing. He said Wang hopes to train 1,000 pe

ple during the next 18 months through the Wang Certified Image Consultant Program, which starts this month. About \$2 million will be invested the first year, and the \$4,700-per-person program is excted to break even during that period

Goulden compared the program to No-veil, inc.'s certification training for Net-Ware engineers. While there is no re-quirement that participants agree to resell or work with Wang products, he said increasing Wang's market visibility 'obviously is part of the objective."



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(Application Kit, Database Kit, color picher, printlfax objects and more), as well as enhancing enline decomentation.

elva has announced CAT Scan 2.5 a flexible tool designed for reporting oo Integrated Catalog Facility and VSAM

Features for CAT Scan include a con-trol card generator for VSAM Manager, a control card generator for DF/DSS Dump ssing geoeric selection of System Managed Storage data classes, storage classes and management classes; candi-date volumes; selection; and display of elds such as last update date and time. The ability to search through every

talog connected to the master catalog CAT Scan is compatible with IBM's

MVS. MVS/ESA and MVS/XA ope systems. License fees begin at \$4,450. ► Softworks

7700 Old Branch Ave. Clinton, Md. 20735 (301) 856, 1892

BGS Systems, Inc. has released Version 4.0 of the Best/1 for Open VMS capacity and performance management system for Digital Equipment Corp.'s Alpha AXP

architecture. The product offers daily perform reporting and performance prediction for VAX and Alpha AXP system Peatures such as the ability to predict termining optimum confi Prices start at \$20,000. ► BGS Systems 128 Technology Center

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oftware Engineering of America has anounced PastGENR 2.5 for MVS XA/

Escon support, System Max age support, an unlike data set copy fa-cility and a multiple I/O facility are new features and enhancements. Full exploitation of the MVS XA/ESA environm

and report the system load on control-lers, channels, interconnects and de-

vices are provided. Best/1 for Opeo VMS

can monitor performance and make

choices about planning upgrades and d

is also provided, the company reports
Prices range from \$9,900 to \$36,450.

Software Engineering of American

1230 Hempstead Tapk. Franklin Sougre, N.Y. 11010 (516) 328-7000 Baber Information Services, Inc. bas unced Reveal Job Sched

BM Application System/400. Peatures for the product include mul-iple user-defined calendars, as many as 10,000 requests/executions per job event, conditional branching within job ate Parameters that can work as arameters or knyword values within job

The product provides future planning ictorial display/reports for work-load elancing, audit trail and tracking and

reporting. Job completion messages can red and sent to multiple users Every application can have its own user-defined calendar. Reveal Job Sched-uler offers unlimited report regeasera-tion and distribution capabilities, even

cross networks, the company said. Reveal Job Scheduler has tiered prices anging from \$500 to \$6,000.

► Baber Information Services 4417 N. O'Connor Road

Irving, Texas 75062

(214) 650-0506 rox Printing Systems Division has introduced the Xerox Document Print

Executive/400 (XDPE/400). The print management software was esigned to provide IBM Application Sys-m/400 computer users with automatic

ess to the full features of Xerox-intel gent, cut sheet laser printing. With the product, unformatted data an be changed into professional-look con so catangen mo promosional-took-ing documents, the company said. Elec-tronic forms, signatures, logos and fonts can be mixed with variable computer data to generate custom documents for applications, including accounts pay-

able, general ledger, OfficeVision/400

Without any operator intervention at the printer, AS/400 neers also receive access to Xerox-intelligent laser printer functions, which include capabilities

such as two-sided printing.
A single copy of the XDPE/400 software for use with Xerox laser printers operat ing at 50 page/min. and lower output speeds costs \$1,985. The XDPE/400 costs \$4,995 for Xerox laser printers above 50

egernin. output speeds.

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Trimax II smart series Uninterruptil The Trimax II three-phase, dot onversion, on-line system offers contin

ous power protection for mainframe and minicomputers, process controllers nd telecommunications systems. The product is available in 14 dif ver ratings, handling to to 420-kVA nds. Prices begin at \$23,986.

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TEM

IBM pins AS/400 hopes on object-oriented

SOCKESTED MINI

IBM has started shipping the first piece of a planned object-oriented application development environment that it excts will become the key development platform for Application System/400 outers by 1996. However, not every-

one is convinced AS/400 users will be so First out of the object-oriented gate om IBM at the end of last month was Envy/400, a client-level tool set based on the Smalltalk/V language and Ottawa-

based Object Technology International, Inc.'s Envy/Developer cooperative develment software. Following a two-pronged strategy, IBM

said it plans late this year to add an initial C++ language implementation, again to write client applications that could ac-

cess AS/400 files and programs. Full serves versions of both products have been promised within two years. John Swainson, manuger of application de-BM's Toronto software

tory, said recently company expects sets to replace Its PG language as the edium for the AS/400

However, analysts said they were ekeptical about how quickly object-ori-cated technology will be embraced by AS/400 nsers, especially the proverbial mom-and-pop shops that make up much

Envy/400 has "a fairly significant learning curve," even for advanced users, said David Andrews, managing artner at ADM Consulting, Inc. in Cheshire, Conn. They will be selling snow cones in

Hades before the installed base gives up on RPG," said Teresa Elms, president of Elms Information Services Group in San Diego. With 1896 trying to remake the AS/400 into an open client/server platform, the object-oriented strategy ap ars to be aimed mainly at making it dent of research at Software 2000, Inc., a Hyannis, Mass oplication vendor that beta-tested Envo/400, said to as belped us immeasely

cing devel times. But he, too, said the ect-oriented approach is t for everybody.

nitment from an organi you want to have," Broberg said. "This is really heavy-

duty stuff here." Software 2000 set up a 30-person de opment group to work with the p

Some large AS/400 shops said they s champing at the bit. 'Tm pleased IBM is

moving to objects be for the commercial war-ket," said Scott Plumer, project manager for techical support at Gan Co.'s data center in Silver

ring, Md. Roger Finoli, manager of planning and technol ogy at Dominion Textile, Inc. in Montreal, said he is interested in adopt-ing an object-oriented approach. Its learning curve of three to six anguages, he said. However, Mare Cohn,

nior vice president of in-mation services at En prise Reet A Car Co. In St. Louis, said IBM's plan to add support for its integrat ed Language Environment to RPG tessens his need to move away from that I guage. "To support th main flow of business, you don't need to construct a new model," Cohn said.

An immediate block for Envy/400 is its price: \$15,000 per user "I couldn't even get near it" at that price Plumer said. And Broberg described the

Jim Harens, director of develtechnologies at IBM's Application Bu ness Systems unit, paid the pricing a rec-sent minimum were set "to ma sure customers were serious" about us

ing Envy/400. However, Harrens nekn dged the expense, and he said a pr

Envy/400 includes a tool for buildin graphical user interfaces and has built in support for accessing AS/400 files is ums, IBM said. The Small programs, IBM sain, and product is intended for high-level a cation development, while the fe for writing lower-level system softwarending to both IBM and analysis.

RPC tool kit takes hold at First Boston Development tools

TI retools for client/server

By Johanna Ambrosio

Texas Instruments, Inc. has revamped its mainframe-based development tools to work in the client/server world.

The Information Engineering Facility (IEF) for Client/Server will be delivered next month. New platforms include Microsoft Corp.'s Windows 3.1, OS/2, Hewiett-Packard Co.'s HP/UX rating system and Digital Equipment Corp.'s VMS operating system, among others. Additional platforms - including Microsoft's Windows NT and platforms from Sun Microsystems. Inc., Tandem Computers, Inc. and others will be readied in the pext year or two.

"We're losing our mainframe baggage," said Johnny Long, TI's director of IEF products and services. Ti's existing customer base of 750 sites are exclusively mainframe oriented. TI, page 89 Ry.Joon S Boxman NEWYORK

tions across the netwo

First Boston Corp. started on the path to distributed com years ago when it installed scores of Sun Microsystems, Inc. and oth er Unix workstations to support

its trading activities.

But it took another step last fall when it began to use a remote procedure call (RPC) tool kit to distribute Unix client/server applica

The new tool, EZ-RPC from NobleNet, Inc., a small Southboro, Mass., start-up, has allowed developers to generate client and server "stube" for distributed Unix applications. That way a trading application can incorporate real-time data feeds from stock market quotation services.

Linking old with new The technology is a way to marry existing data-broadcast technology with emerging distributed computing networks. "We've got all these traders' workstations, and when a new



ice comes along, we want all ose stations to receive it at the same time," said First Boston Chief Technology Officer Chip Steinmetz. First Boston uses Quotron Systems, Inc. technology to broadcast the real-time date

The RPC tool kit generates softwere that is in the fifth layer of the seven-tiered Open Systems interet networking protoco stack, making it accessible to use

"Now, unstead of working at the transport layer, we're working at the sussion layer, so we have an easy interface for our programs, "Steinmetz said is Applications can "grab" the updated trading data as it broadcast over the Transmission Control Protocol/Internet

The pricing data originates in IBM mainframes running DB2, then crosses an IBM LUGE Systems Network Architecture gateway to reach the network of Unix machines. os at Fire The first release of EZ-RPC-based applica Tool, page 51

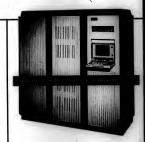
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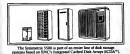
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TI retools for client/server

CONTINUED FROM PAGE 77

Key to the reworked tools is an encyedia that tracks all of the applications under development by teams of people in different departments or wherever they might be. New versions of the pedia, based on the same one that now runs on IBM mainframes, will run on HP/UX and VMS as well as a localarea network under OS/2.

Another major difference in the new ver-sion is that it provides more options for users to develop software, Ti managers said. With many development tools, users have to lump all the portions of the code into one effort: the interface, the

core application logic and the data scr-With the new IEF however, users can separate those components to develop them — and deploy them — on different platforms. In addition, TI sells a business

ng tool as part of the suite. whether II's integrated set of development tools will make it in the plog-and-play world of client/server computing.

Michael Quintero, senior technical an-

alyst at Blue Cross/Blue Shield in Jacksonville, Fla., was a user of the main-frame-based IEE He said he has been using the new IEF version to develop a correspondent's system that will enable Blue Cross om-

ployees to send letters and other ents to clients about benefits changes and claims informa-

The application, which was in development about a month, runs in Microsoft's Word for Windows under OS/2. Whenever an en or preds an address or piece of information from the DB2 database sitting on the mainframe, he pulls down a Word mean. The request is

ent and the information returned "We can allow the user to stay

in the environment he is used to and hit databases he doesn't even know exist." Quintero said. Likewise, the development platform has been OS/2, although the company

ight develop for Windows NT. Quintero said he likes using IEF because developers are already familiar with it. "It's stable, and we woo't have to

throw away the application in a few Corp.'s Oracle database

The IEF-developed application at Union Pacific Technologies in St. Louis was a hit smaller in scale. For one thing, it was developed as "proof of concept" only and is oot intended for production, said busi-

Server supports many styles of client/serves

ness systems coosultant Don Black. Second, the work involved replacing just the graphical interface portion of an plication used in the information systems department - going from some-thing written under the OS/2 Database Manager to using Windows and Oracle

Despite the relatively limited scal Black said, "it was very time-consumit

and very difficult. The next time should be easier." Still, he said, IEF for Client/Server "will be our development platform of choice going forward."

ertain future anwhile, analysts were split on

er Ti's integrated tool kit will prosper in the client/server environment where many customers so far have opted for individual tools for specific needs her than going with a ooc-stop shop

sinframe days," said Ed Aciy, an analyst at International Data Corp. in Framingham, Mass. "There are benefits to the integrated approach because the distributed world is more complex, but how successful TI is going to be remains to be

Acty added that Ti will likely make the hierest hit with mainframe customers who want to slowly evolve into elient/server environments.

But Nortoo Greenfeld, an analyst at Computer Intelligence/Infocorp in West-boro, Mass., said, "TI is moving traditional CASE into the '90s. They have thought companies to move hig systems to eli-cat/server."

CRAIG BROWN'S

OVERHEAD PRESENTATION

WAS SO IMPRESSIVE

NO ONE NOTICED THE

GUACAMOLE ON HIS TIE.

RPC takes hold at First Boston

CONTINUED FROM PAGE 77

Boston is in limited production, with just 10 traders using the distributed Unix software since late May. If the New York trial run of the distributed applications mes well it will be expanded to other U.S. regional offices this month, Stein-

metz said. First Bostoo has about 700 Sun workstations and several Unix servers on

The same technology will also be us to allow trading applic with real-time date feeds from many information vendors. Steinmetz expli

"We've begun to create a generic broad cast protocol," he said. "We'll give it to the application programmers so they think they're calling a simple API."

Divide and conquer

Mercury's XRunner automated software ng system and Imperial's X-Design er graphical interface builder.

cording to the firms, XRunner 2.0 uses a new object-oriented record and replay technology that generates test scripts that can be used for future resee and ports. The process of user interface design is automated by X-Design-er, producing code that is portable

cross multiple platforms.
X-Designer coupled with XRunner's support for object-oriented testing per mits X-Designer to generate applications that have built-in testability supported

by XRunner, the companies said. A single-user license of X-Designer costs \$3,500.

Mercury Interactive 3333 Octavius Drive Santa Clara, Cattf. 95954 (408) 987-0100

Watcom International Corp. has an-nounced VX Rexx visual solution builder that enables paers to develop graphical user interface (GUI) applications for VX Rexx includes a visual GUI form de-

signer, a project management facility and an interactive source-level code deand an inte

VX Rexx noes IBM's OG/2 Rexx, wh is included with the OS/2 operating system, and it can be used as a scripting language for "Resx aware" applications The product also exploits multithread-ing and uses OS/2's 32-bit capability at

esign time and execution time. Until Sept. 30, VX Recx is available for \$59. After that date, the product will con

Waterloo, Ontario Comada NSL STS (512) 886-3700 STG, Inc. has released Axiom-SA, a Win

415 Phillip St.

dows-based computer-aided software engineering (CASE) tool. Support for Yourdon-Dek

Hatley-Pirbiah Structured Analysis is provided and, according to the company, the product is the first CASE tool to fully integrate requirements tracing, req ments analysis and documentation pro duction into a unified environment und

Axiom-SA costs \$1.496 per user. ► STG 1895 Ventura Blod. Encino, Calif. 91316 (818) 708-2213

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hired within the past year can expect to stay in their current job between 18 and 24 months - slightly Unfortunately despite some er ging signs in the national

omy, turnover among technolsages is not expected to imers specializing in information

systems placement and ClOs. Observers report a rise in jobchanging activity that many be-lieve will affect both individual ca-

who call me," says Allan Ditch-field, CiO at The Progressive Corp.

Corp. CiO John Alexander and prove—and may worsen—during Sprint Corp. ClO Ron Pender the remainder of 1993, according to consultants, executive recruit—nior Sexecutives lured to more fumer rival AT&T.) Such superstars are Jured by the promise of mega-compensation, which in Ponder's case topped \$2 million a year.

Statistics support Ditchfield's experience. A recent Deloitte & "Turnover is accolerating. I can tell by the number of beadhunters

che survey found that CiO turnover hit a record high in 1962, ially at large firms (CW, July

that one-third of CIOs in 1992 took over from predecessors who had been dismissed or demoted. That's quite a change from a

CIO could safely assume that his

Record-high CIO turnover

is keeping execs — and com-

panies - hopping. Here's why things aren't likely

to get better and tips for

BY JULIA KING survivina.

CIO turnover

CONTINUED FROM PAGE 85

s, chief operating officers an chief financial officers surveyed were not satisfied with payoffs from their company's 1S spending Naturally, Kaplan

panys as spensons, reaturary, sapans says, they bazare the 18 chief.

Things further worsen when top man-agers begin to believe — fairty or not — that 18 did not provide adequate informa-tion for key decisions. Their solution: tion for key d

Fire the CIO.
"When top m nt doesn't get that it wants from IS, the trend is to ange top IS leadership to get its needs

met," Kaplan says. "It's not so much that the inmbent CIO is incom tent — rather, that he or she is unable to take a

sale is unable to tutor a company to its next stage of development."

More often than not, IS change involves hiring from outside the tradi-tional IS ranks.

Technology itself is al-so a culprit, says Ted Standish, a former Gillette Co. executive who last July voluntarily left to

in CSC Index, Inc., a ambridge, Mass., consulting firm. the CIO must make more and more ward. Inevitably, a week later peraps, some choices will be shown to be not as good as they could have been,

It's a deadly dilemma. ClOs who are brave enough to keep up with technology risk having their decisions backfire, he es. On the other hand, ClOs who wait until technology matures can find them

elves in analysis paralysis.

Another big problem, adds Raymond ianganelli, president of Gateway Mangement Consulting in New York, is a poial clash between CEOs and CiOs.

The two, he cotes, often have vastly differing mind-sets on important issues ranging from change, restructuring, IS cost-cutting (which ClOs generally consider far more important than their boso en) and business process re-engineering.

Staffs suffer, too

If accelerating turnover is alarming to CIOs, it's also unsettling to cotire IS staffs. Whoever takes the IS reins, turnover at the top affects the entire 15 orga-

"Change at the top is absolutely de-abilizing," says Ditchfield, who left his post as senior vice president of systems neering at MCI Communications Corp. to join Progressive in 1991. "When you come in from outside

the company, there's at least one person who thinks he should have teo the job and two others who are mad bese that guy didn't get it. There's a real resis-

Headds,"Like a con dian who's up on stage and being challenged to the audience laugh, you're faced with a staff that's challenging you to show them how heiltiant you are."

That's if you have a staff. Larry Gunther didn't when he took

over as CIO at Gillette North Atlantic Group in Boston. When Gunther hired on, Gillette was and remains in the midst of decentralizing its corporate IS staff and distributing personnel out to its divios, he explains.

Because I didn't inherit an organiza tion, distrust on the part of staffers wasn't an issue. But there are other is sues," he says. Chief among them: peot-up demand for IS services from functional managers and others who have little or no time to participate in key IS initiatives, including new systems for sales casting, distribution, requirements ning and customer service.





stage of new CiOs rose 25% --

vey of 534 North American CIOs by Delains & Too

"A lot of plans were put on hold pen

ing the hiring of a ClO," Gunther ex-

move lorward with urgency, but there is

a problem with getting adequate user in-volvement. We want the best resources

available to staff projects, but the prob-

lem is that those people are busy runni

REASON CICIS' PRESICUSIONS LIFE

Despite a modest drop in firings, or of all CiOs left involuntarily. Some east that figure will women in 1995.

Standish is well-acquainted with Gun-ther's problem at Gillette. "When I left, there was a sizable effort going on trying to decide what the IS support strategy should be," he says. Three-hundred people were involved in IS, he says, with 100 ese at corporate IS, which essenti

ly had its own ages "It was like trying to com voy in the fog," Standish recalls, "and angu direction with no communic

etween the ships." In general, Standish says, the role of the CiO is becoming much more political than ever because today's IS depart-

uts are trying to serve so many differeot constituencies - senior executi For the IS chief, politicking involve

For the IS cheef, politicizing involves toceping track of who has the most power (which is constantly shifting) and who should be served first. The political ram-ifications alone were enough to per-suade Standish to leave. "The new CIO is faced with trying to serve so many different constitues

that someone will invariably be unhappx." he says. "The question becomes: What is the strength of the person who atisfied with IS?' If you're smart, you try to satisfy the major power bases nd sacrifice the rest. But if the por CIO turnover, page 90

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CIO turnover

CONTINUED FROM PAGE 95

base changes, you're in deep trou-ble," Standish says.

"The IS organization will contin-ue to do what they think they're prosed to be doing, while the on on the top is constaodifying direction, so there's al-rays tension," be says. All this politicking, he observes,

makes for an unbealthy relation-ship between CIOs and IS staff

Some ClOs, like Standish, figure at it's just not worth it and leave. ome incoming CIOs try to heal the

cording to Ken Harris, vice esident of worldwide informson services at Louisville, Ky.-used Kentucky Fried

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40.0

GPULLY AND TO

PS, 000 LABO

Chicken, a division of Pepsico, Inc., time and esty are the only re-alls for alleviating tension and for

The first thing about stepping in need to take stock of the internal IS cusmer base. You've got to know how happy they are. This will point up a lot of weak-

nesses and clue you in about where you need to focus your enorgy and resources," says Harris, who previously served as CiO at Taco Bell, another Pepsico company, and before that at Security Pacific Information Services Corp.

"After that, the most important thing is to be absolutely clear with IS about the goals of the company, your personal goals and your expectations of the people who work for you," he says. "People working for you will either fall out or accept the freedom and openness that comes from knowing the rules, and the relationship of trust builds

tion is the best weapon to ease the high anxiety that inevitably accompanies high-level change in an

"People always get anxious when there is a change, and communication is the best key to reassure people," says Susan Cramm, who moved into the CIO office at Taco Bell when Harris left. Part of her weekly routine is to meet one on one with IS staffers.

"The agenda doesn't have to be business. The idea is to let people get to know me personally,"

Still after 2% years on the job.

Cramm says staffers ask her when she will be leaving. "It's almost as though they can hear a ticker running," she says.

ven the industry, there's not a lot you can do to convince them you're staying. There will always e this sense of underlying insta-

"IS staffers just think you're passing through," says a former CiO of a \$4 billion technical ser-vices company in New York. "They se shout their own obs because it's bappening to

Major downstaing In his first year as CiO, for exple, this CIO, who requested snonymity, says his company went

through five downsizings as well as a major relocation from Massachusetts to New York. "We went from 110 people down to 50 peo-ple, and then we

would hire staff projects, then let them go when we had had financials.

Expo '93 East, Atlantic City, Sept. 14-15 -- Contact: C.S. In addition to involving staffers in planni is critical to staff

support, according to Kavin Moody who was tte and then Bank of Boston Corp. before becoming an

independent consultant.

"Getting people involved and participating is probably the most important thing," Moody says. in 1990, during the massive reor

which, among other things, involved the departure of former CIO John Rodgers, "we involved hundreds of people in the planning process, so there was a lot of buyin," Moody recalls.

At this stage, few are willing to et when ClOs' tuck will change. Most say that these days CIOs, like soliticians, need to consider reetion a full-time job. Some offer

advice (see story page 86). Masterofall The bottom line, according to

Ditchfield and others, is the need o master technical, business and You can be the best technical

reon in the world and get sysms engineering working, but ithout strong linkages with busi-

sion," Ditchfield says. are precisely the things that get

based in Ridbey Park, Pa.

Calendar

AUG. 22-AUG. 28

erep '93, San Prancisco, Ang. 23-27 — Contact: Inter- 247-8383. on Co., Mountain View, Calif. (415) 941-3369.

AUG. 29-SEPT. 4

nual international Gopta Developers Conference. Saz. Prancisco, Aug. 29-Sept 1. - Contact: Gupta Corp., Menlo Park, Calif. (415) 321-6600.

Fed Micro '93 CD-ROM and Multi edia Con Expendition, Washington, D.C., Aug. 31-Sept. 2 - Contact: Toes Lauterback, National Trade Prod Inc., Alexandria, Va. (703) 683-8500.

nt Forum, Philisdriphin, Ang. 31-Sept. 2 — Contact. Expirit Systems Consulting, Inc., West Chester, Pa. (215) 436-5290.

SEPT. S-SEPT. 11

Compusapo '93. Las Vegns, Sept. 9-11 - Contact: UNSC Investment Group, Newark, Calif. (510) 657-5418.

SEPT. 12-SEPT. 18

Report, Inc., Uwchland, Pn. (215) 456-6415. Calif., Sept. 14-16 - Contact: The Kalthoff Group, Cin-

cionati Obio (513) 871-6806 SEPT. 19-SEPT. 25

bite World, San Jose, Calif., Sept. 21-23 — Cont Digital Consulting, Inc., Andover, Mass. (505) 470-3680.

Unix Expe '93. New York, Sept. 21-23 - Contact: No al Blenheim Expositions, Inc., Fort Lee, N.J. (201) 346 1400

Pressing the people button When it comes to implem project, the strategic advantages are evolving from "having more" to "knowing more." With

imaging this knowledge is more than learning which button to push, it is a continuing sears for functionality from the equipment and the people who use it. "Being smarter" is not son thing that happens all at once. It is part of an incremental process of improvement. Expect

users to resist change, and try to educate them on the big picture rather than on simply how to use one part of the system. Source: Special Report: Electronic Imaging's Impact on People. "Troining Programming the Peopleware," by Kathleen Hawk, In-

form, January 1993. Lip service

Customer service may be the battle cry of the 1990s, but a new survey of 100 top corpore shows there is a wide gap between business talk and business action.

A big majority of the corporate managers

Decement World '93. Hartford, Conn., Sept. 22-23 — Centact: Key Productions, Inc., Hartford, Conn. (203)

SEPT. 26-OCT. 2

OPSLA 'pp: Conference on Object-oriented Program-sing Systems Lampusges and Applications (OOPSLA). (aubitageos, D.C., Sept. 26-Det. 1 — Coptact: Association for Computing Machinery, New York, N.Y. (212) 869-7440

IS An A Service Organization. Columbus, Ohio, Sept. 27-28 — Centact: Otellette & Associates, Bedford, N.H.

Imaging Expo. New York, Sept. 25-30 -- Contact: Comtek terrestional, Witten, Conn. (205) 854-1152.

OCT. 3-OCT. 9

The High International Congress on Advances in Nonimpact Printing Tuchnologies/Japan Hardcopy '93, Yoko-hama, Japan, Oct. 4-8 — Contact. The Society for Imaging Science and Technology, Springfield, Va. (700)

OCT. 10-OCT. 16

est. Azabrim, Culff., Oct. 10-12 — Contact: Karl Steldi, Reed Exhibition Cos., Stamford, Conn.

Hypertest '93, Seattle, Oct. 14-18 - Contact: Asso tion for Competing Machinery, New York, N.Y. (212) 869-

CAD/CAM, CAE Reseller/Systems Integrator S Westahops '93, Boston, Oct. 15-17 — Contact: Trisk Griffin-Silva, Darstech, Inc., Cambridge, Mass. (617) 154,1550 (57%) said they believe delivering value to tomers is critical to success, but 70% said they judge customer service based on internal mea-

sures rather than customer measures (such as customer surveys). Purthermore, only 20%

per satisfaction. Seaster Ruth & Strong, Inc., Leulogton, Mass., (617) R61-1700.

said employee compensation is tied specifical Blaming consultants Take a good look at yourself the next time you plan to him an outside consultant. Less-thanpectacular results on your last project may be

your fault, not his.
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from a consultant, make sure you're not one of the following problem types: *The carper: Antagonizes consultants by com-municating solely with deristve remarks.

municating solely with devisive remarks.

"The disappearing act Senior menagement and staff bock off after the initial commitment.

"The withcheroot Changing the company's point person breaks trust and slows progress.

"The solids maiser: Penny-pinching during implementation is always a bod idee.

"The ammestar: Pergetting why the consultant was based to be a present the progress."

was hired in always diseas

Lewlett-Packind computer systems helped Spalding's worldwide revenue 2000 four times faster than the hiddestry average

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The CW Guide to LAN Disaster Recovery





Cheyenne and Palindrome tape backup systems neck and neck in user satisfaction survey. Page 99 Bad things will happen to your corporate LAN — more thing unfortunately, than you can hope to anticipate. Unlike the mainframe environment, where you're assured of centralized control and can develop an airtight disaster recovery plan, there will always be an element of chaos when something on the local-area network fails.

The biggest problem is the variety of things that can go wrong. Is it a file server crash, a faulty hard disk, a LAN eard or a workstation? Is it an application error or a problem with the network or desktop operating system? There's no one broduct on the market that can tell you.

Occasionally, the source of failure is clear, such as in the case of a natural disaster, theft or sabotage. But here more than ever, recovery involves many disparate elements that neither an individual nor a single team could carry out.

In this Guide, we present the products and services you'll want to have on hand in the event of a crash or disaster—from those that help avoid data loss, such as tape backup, RAID and power control devices, to those that help you get back on your feet, such as recovery services and utilities.

By no means are these products going to solve all your problems; many are just now evolving to meet the needs of LAN-based systems. What's more, much of LAN disaster planning involves not products but innovation and foresight. LAN experts and users say it's most important to stay flexible and be on the lookout for constant change.



Users of BusLogic's Chantal Disk Array Seftware especially like its

The blast went off

World Trade Center towers at their foundation and plunging hundreds of people into smoky darkness. As David Diaz emerged from the building to the relative safety of Manhattan's sidewalks, began to take hold. Amid his other

swirling thoughts, Diaz wondered if his re-BY JOANNE CUMMINGS covery

plen, imed during the Persian Gulf war and

tested several times since, would withstand the "real thing." Quick recovery is important to Dean Witter, Discover & Co., a broberage firm in New York. With roughly 70 Token Ring local-area networks, all anchored by 496based IBM Personal System/2

Cummings is a free-based writer based in Mariboro, Mass.

formation technology, had cosured that regular backups were done, tapes were stored off-site. power control devices were implemontad and a contingency site was located should the building become inaccessible. But would it be

Luckily for Diaz and his firm, the plan passed the test, and the firm emerged reintively unscathed. But for those schooled in mainframe recovery. Diaz's plan might appear less than bombproof. For instance, rather than regularly backing up every piece of data in the company,

he backs up only the servers. "We can't keep oo top of everything," Diaz says. "We notify the users that they need to keep critiral data on the servers. We own the servers and provide for off-site tape backup, hut users are respoosible for backing up their own bard delene "

Diaz could inventory each user's PC remotely and run the backup. But current automatic inventory software just can't deal efficiently with Dean Witter's thousands of end users and endless variety of PCs and configurations, he says.
As a result, some overs learned

a tough lessoo. "Some people were backing op their PCs to a floppy they kept in their desk," Diaz says "That didn't do them any good wheo we couldn't even get access to the building, which is really what they should have been plan ning for. Diaz had made sure to ma

collect PC configuration informatioo from users to create a reptica of its systems at another Dean Witter locatioo. This was important since Diaz and his staff were allowed only limited access to the huilding after the bombing. "We do keen indexes oo each server of server-resident files, and we do in ventory the applications and hardware resident oo each PCregularly. Theo we can ensure that after a saster, users can at least have

the proper setup." inframers who value contin uous operations might also balk at how Diaz views uninterruptible power supplies (UPS). While the most critical servers are plugged into UPSs with surge prot the battery backups will last for only about one hour. The gual is not continuous operation throughout a disaster; it is merely to alk an orderly shutdown of the LAN

Although Dean Witter was up

TIP

12 TOOLS TO KEEP YOU UP AND RUNNING

rk is the first line of date phat local-eros network disasters. If mothing does go avery, though, you ad to have the right tools in your lift minimize downline, recover data

FER OR DISK REDUNDANCY

disk redundancy. For Instance, Novell, toc.'s NeeWare SFT III provides server mirroring, where two file servers are inked via a high-speed connection so that if one server fails, the other keeps

Disk redundancy - where a dis drive failure does not stop file server operation — is less effective than server mirroring, but it costs less. There are two methods: disk mirro and disk duplexing. Both provide redundant drives in a 1-to-1 ratio. Mirrored drives are usually attached to the same host bus adapter, while duplexed drives use separate adapters,

iding extra redu igh the term RAID, or redundant arrays of inexpensive disks,

covers disk mirroring and duplexing, it most often refers to drive systems that allow the loss of a single drive in an array of three or more drives. Depending on the RAID system and operating rmance can increase or system, perfe

Although RAID systems provide less redundancy than mirroring or duplexing (and cost more), they are tter than none at all. RAID system are now supplied by PC manufacturers such as Compaq Computer Corp. and Dell Computer Corp. and by disk system vendors such as Micropolis Corp., Legacy Storage Systems, Inc. and Core International, Inc.

DATA BACKSID

Backup is probably your most important tool for disaster recovery; if all else fails, you can at least get your data back. A data backup system allows you to copy data to a variety of media and then restore data that has been lost because of hardware failure, accidental file deletion, file comuption or other causes. The preferred medium with tape because of its low cost and high capacity.

Backup systems have a history of reliability problems; however, today's systems will provide reliable service as long as you follow proper procedures,

Traditional turnkey backup solution including regular testing.

Traditional turnkey backup solution including a tape drive, a host adapter, cables and software — are available from vendors such as Mountain Network Solutions, Inc., Tecmar, Inc., Tallgrass Technologies Corp. and Conner Peripherals, Inc. ormerly Maynard). Or you can build your own sys

by purchasing the software and addin your own hard drives. Major software vendors include Cheyenne Software, inc., Palindrome Corp. and Legato

POWER BACKUP AND CONDI PCs seem to be more tolerant of power glitches than mainframes, but power glitches than maintrames, but you still need power protection. Uninterruptible power supplies (UPS) are generally used with network file servers and other critical components to allow for proper shutdown in a power outage. Line conditioners and surge protectors protect equipment

Sitioners "smooth out" and lize power, while surge pro op" extraneous voltages over

Unfortunately, nearly all available rmation about power protection is piled by the power protection product manufacturers; there seems be no good independent source of mation. Major vendors of pow ity products include Best Power heology, Inc., American Power Conversion Corp., Hetwork Security Systems, Inc., Clary Corp., and

VIRUS PREVENTION AND DETECTION SOFTWARE

Scanning programs, cor virus exposure. However, no single program will eradicate or prevent all viruses. New viruses appear every da so keep your software up to date. The numerous virus protection vendor, include McAfee Associates, inc., Command Software Systems, inc., intel Corp., Central Point Software, inc. and Symantec Corp.

and running within 24 hours of the bing, there were some minor s, and Disz has since tweaked his policy. "We had been doing backups twice a week," he says. "After the bomb, we realized that recovering even two or three days' worth of data was too timeand resource-intensive. Now we back every server up onto digital tape and ship it off-site every day.

Then you're looking at losing maybe a half day to restoring the data which is easier to deal with. As Diaz and many others have found, preparing for and rebound-ing from disasters affecting LANs is a whole different ballgame from in the event of a disaster," he says the mainframe environment. With mainframes, you have centralized control and, should a problem occur, can fairly quickly determine the source of the problem. Not so in the fragmented, distributed

LAN environment, where you just can't hope for the same level of pre-vention and quick recovery. Software to remotely monitor and inventory PCs - as well as to back up and restore data - on distrib uted LANs just does not exist. In addition, the disaster prevention

products available for the mainframe world, such as UPSs, tape backup devices and fault-tolerance features, are still evolv support the Buid nature of LANs. The mainframe environ

was simpler, simply because it was more controlled," says Houghton LeRoy, principal network engiat The Feeboro Co., a manufacturer of process control systems in Foxboro, Mass. The company re-cently downstred from main-frames to about a dozen Unix LANS. "You know councily where the data was stored, which made it a lot easier to back up and recover

Perhans the biggest difference in prepping for LAN di-sasters is that the master plan

esn't stay the same for long. Applications, configurations and critical data change so rapidly on a LAN that recovery plans can be-come obsolete within weeks of eir being written.

You constantly have to be testing your assumptions and revisiting the plan," says Dennis Sulli-

van, vice president at Soudder, Ste-vens & Clark, an investment firm in New York. "You test that you have the right telephone numbers for your contact people and that they know what to do in an emergency. You also have to test whe er this tape restores to this piece of hardware, and after that's done, can my users do their trans es? You test to see if your data oks good and if your reports rec

At Dean Witter, exhaustive tess ing helped close holes in the recov-ery plan before disaster struck. cally, they were human problems," Diaz says. "People would save an old copy and lose the lat-

veal serious problems. Lee Tydias ks, president of Computer Conver sations, Inc., a disaster recovery vendor in San Diego, says one of his clienta was backing ap its LAN servers daily, but the information

wod was less than timely:
"The administration thought all the critical source code was on the network server and was being acked up nightly," he says. "We sund out that the source code on the network was over a month old The programmers said the LAN was too slow and was affecting their productivity, so they were keeping all of their data on their

No company is exempt from this phenomenon: Users have so much control over LAN applications that it's not unusual for critical data to change physical location rapidly

"You have to tell end users, "If we don't have this application, how will you get by for a day or two without it?" "Sullivan says. "You need a procedure so you can do that for every new application."

Diseaster recovery, page 95

RY PATRICK H. CORRIGAN

OCUMENTATION TOOLS

p up-to-date records of your LAN afigurations and procedures to w when recovering from a crash eful products to this end include LAN inventory software such as Brightwork Development, Inc.'s LAN ematic inventory, programs that act user and security information ery plans.

werful, specialized docu ools with long or difficult learning curves are easily forgotten and may be ultimately less effective than simpler tools, such as standard word essors and simple drawing

Companies that provide off-site tape storage for mainframes now provide at service for LANs. Off-site storage ers will pick up your tapes, ste m in a secure, temperature- and midity-controlled building, then return them when needed. Response times vary, depending on your contra-terms. Companies that offer this service include DataSafe.

EMERGENCY EQUIPMENT ACQUISITION PROGRAM

Most hot sites operate on a first-co first-served basis. That's why in a major regional disaster, you should have an emergency equipment acquisition plan in place. This is usually accomplished by negotia with vendors in advance and having open purchase orders ready to avoid delays. When four disting your plan consider the effects regional disest uld have on potential suppli

ISK AND VOLUME REPAIR UTILITIES

These are the first line of defense for disk-related problems. Some utiliti such as Novell's VRepair, are shipper with your network operating system. VRepair is used for repairing damage (Ware volumes. Others are rd-party packages, such as 14 from OnTrack Data Recovery, which from OnTrack Data Recovery, which recovers data from damaged NetWar server disks. Symantec's Norton Utilities and Central Point Software's utilities repair DOS volumes and recover defeted files. A word of caution: Always back up a disk or ume before a repair.

bundance of these tools are able for PCs and LANs. Consider the following categories: PC diagnostics, such as Nicro 2000, Inc.'s Microscope or Touchstone SoftWare Corp.'s CheckIT; cable scanners such as those from Microtest, Inc. and John Fluke Manufacturing Co.; Simple Network Management Protocol-bas work management systems; col analyzers such as those fr ork General Corp., Novell and

OT SITE SERVICES A hot site is a place to set up shop it your site is unavailable. A few tralitional mainframe service pro such as Comdisco, Inc. and S me service provid Recovery Services, Inc., and Sungard Recovery Services, Inc., are beginnin to provide for LAMs. A hot site is gen erally equipped with a network, a file server, PCs and communications cap bilities. Because LAMs are generally s, a LAN hot site may require significantly more planning. Kee up to date could also be costly

ng available spare disk syst evers, hubs and workstation ets you up and running quickly ming a disaster or crash. Keep pare components such as LAN merface cards and disk host ad available to effect system repairs as quickly as possible.

ATA RECOVERY SERVICES

The average failure rate of disk and ape systems is 100%; they will wentually all fail. If their failures on eventuary all less, it more satures occus at one time, you could have a major data loss. Services such as those from OnTrack can often restore data from damaged disks or tapes. One note: Line these services up before disaster strikes. Also, make sure the service is experienced at recovering data fro the formats and operating system

Corrigen Group, a const firm in Seasoffle, Calif. No, Cellf. He is writing a book called LAN Disector Prevention and Recovery (Prentice Half). He can be revia CompuServe at 75170,446.

The CW Guide to LAN Disaster Recovery

As dumaging as floods,

earthquakes and fires are, the more mundane disasters - power fluctuntions and electrical outages — are more likely to take you out. That's where produets such as UPSs, line protectors and

power conditioners come in. "We had a major thunderstorm come through, and we got a direct hit of light-ning somewhere along the power lines," says Brad Hartz, systems administrator

at Food Service Equipment, Inc. in Fort Wayne, Ind. "But because we had the UPSs in place on the PCs and the phones. customer service remained operational until power was restored."

The one unprotected computer lost its hard drive, Harky says. "The rest of the LAN didn't have a problem because we were able to isolaje it with line suppres-sors." Line suppressors are units located on the cubling between each LAN device that isolate the devices if they detect power surges or drags. UPS vendors are working to make

their devices more responsive to spe LAN peeds. For instance, many UPSe, including those from American Power Conversion, Inc., Tripp Lite and Best Power Technology, Inc., include software designed to close files, log out users and

gracefully shut down the LAN. UPS software also increasingly allows some degree of power management from a single centralized location. Robert

When we asked our engi

with 100% uptime and

at House of Seagram, a division of Joseph E. Seagram & Sort in White Plains, N.Y., uses optional Novell, Inc. NetWare Loadable Module software that allows him to remotely monitor server power levels

and unit temperatures. However, says Patrick H. Corrigan, managing director of The Corrigan Group, a LAN consultancy in Sausalite. Calif., some holes remain. "They won't update partially updated databases. If

they went

Make sure you . . .

do to the event of a flood.

ant and minet your system a to be some the backup copies date are wealth.

ut don't ever

Introducing Matrix UPS Modular protection for the client/server WAN



The challenge: eliminate the tough installation, burdensome service contracts, high lifecycle costs and threat of a

single point failure that plague existing midrange UPSes. The solution: Go to pieces. Package premium power protection in an



to their 'block' which can be diag-nosed and hot swapped-out while the protected system stays up and rehable. No downtime. No service delays No unnecessary risk. The fact it. Matrix delivers plug and-play reliability no other UPS can match Matrix modularity means low lifecycle costs

When you're rightsizing to conserve

cash, the last thing you need is a UPS that wastes it. Matrix modularity doubles expected battery life, saving you replacement costs, and operates at 93% efficiency, so you save electricity and cooling costs as well. In fact, over a 5 year lifecycle. Matrix costs up to 60% less than same-sized UPSes... savings you can't afford to ignore.



The CW Guide to LAN Disaster Recovery

you have workstations updating database files, you have to make sure the apdication can deal with a partial update Users must program rollback capabilities into their database applications. UPS vendors are lagging in support for the Simple Network Management Protocol (SNMP). While they support their pro-prictary MiBs, or Management Information Bases, they have yet to agree on a

With falling prices, it's becoming more

tandard, cross-platform MIB.

practical to put UPSs on the LAN. "You can get a no-frills UPS with 10 minutes of battery time for maybe \$100," Frowenfeld says. "But a really good UPS with the software and everything costs maybe \$400 to \$600. It makes sense to spend a little extra and get the protection

Once the disaster is over.

"Whatever you had in place for the LAN installation is all you need to bring it back up," Diaz says. "It's really not that olicated if you have the proper UPSs. up tapes and equipment in place."

out recovering from a disaster is le matter of service firms and proin planning. You can have perf cked-up data, but if you can't re ousiness, you could lose it. Dis ning is a lot like defensive dr avs leave yourself an alternative.

neers for a midrange UPS) % lower lifecycle costs, to pieces...







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IBM



Chevenne's backup software rates highest in overall user satisfaction

By Kevin Burden

Corp.'s Xpress Librarian. . Intel Corp.'s new backup ncking up you data is one of the program, Storage Express, is. most important likely to pose a challenge because of the vendor's marketsteps in complete ing power, but the product has aster recovnot been in the market long ers: A lightning enough to huild the sizable boit may take out your file server, user installation required for but if you've inclusion in this Scor Setting its sights on the relimade sure you've

ability requirement, ARCserve received the highest overall satisfaction rating from its users, with a score of 73. Network Archivist received the second highest overall score, 72. MaynStream scored third-highest with 66 and Xpress Librarian came in

backup properly, according to ates by consultant Patfourth with a score of 6t. rick H. Corrigan at The Corri-gan Group in Sausalito, Calif. Chesonne's ARCserve scored its highest rating in the category of reliability; an 8.2 Among those nears who on a 10-point scale. Users ratake backup seriously, retied the product high for its sup-port of multiple tape drives. ability is the No. 1 attribute they want in their LAN backup ARCserve is espable of consoftware, according to 178 retrolling up to seven drives via one Small Computer Systems

anondents to our Buyers' porecard survey on LAN interface adapter. Users also said the product had major backup products. The following market-leadstrengths in its ability to keep ing products were included in multiple copies and track the the survey. Cheyenne Software's ARCserve, Palindrome history of a file. Corp.'s Network Archivist. chivist scored a reliability rat-

four competing products. Acity mark was a similarly strong rating for error handling, another critical feature ed by users in which Netmrk Archivist posted a 7.5.

Topping only one specific rating area — quality of ven-dor support — Maynard's MaynStream produced aver-age marks down the line. ers noted that the product is sometimes singgish and clumsy in accomplishing resthe ability to effectively back uo multiple drivers

Emerald's Xpress Librarian scored towest in data integrity od error handling. But it did post the highest rating of the four products for its ability to Buyers' Scorecard records users' satisfaction with their

alled technologies. Users assigned a 1-to-to rating with their LAN backup software in 17 categories. All cat espries were factored into the al scores. The scores for each product in the six most important categories are listMETHODOLOGY

dor sources. First Market Resce Corp., an independent market research company in Austin, Texas, conducted the survey and tabulated the results. The re-

sponse base was 178. Users rated their satisfaction with their installed products and were not asked to compare or rate one product di-

To compute the overall score for each product, we performed the following

1) Multiply the product's score in the first category by the user importance rating for that entegory to obtain the weighted

2) Repeat the process for all remaining

3) Average the resulting figures for the erage weighted score 4) Convert the average weighted score to base 100; the ratio of the average weighted score to the average user importance is equal to the ratio of the overall score to 10. Numbers were rounded off where nec-

ACKNOWLEDGMENTS

Computerworld thanks the following in-dividuals and firms for their assistance in preparing this Buyers' Scorecard: Computerworld Database Division Para Yale, Dataquest, Inc.; Steve Lewis Systems Audit Group.







Maynard Electronics' Mayn-**ARCserve** RESPONSE BASE: 50 USERS 8.2

right - which re-

quires testing, testing and

ting again — you can at and restore what you've lost.

But only 20% to 30% of local-

rea network users make a

concentrated effort to do

uld you buy the program again?

8.7





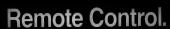
MGS ARE BASED ON A 1-TO-10 SCALE, WHERE 10 IS BEST.



6.2







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BusLogic's Chantal

lem, at least in the eyes of users: They are proprietary "black box-es." And anything smacking of

"proprietary" does not play in Pe-

Fortunately, a handful of comp

For this Firing Line, Com

offers inexpensive RAID capability with high performance, reliability

■ Evaluators said BusLogic, Inc.'s Chantal Disk Array Software provides inexpensive and reliable RAID-5 performance with a range of Small Computer Systems Interface (SCSI) disk

■ While generally pleased with the Chantal software, evaluators wished for better documentation and more management options.

It was only five years ago that offerings are packaged solu the now-familiar concept of redun-dant arrays of inexpensive disks (RAID) was first proposed by re-searchers at the University of California at Berkeley. The idea caught on quickly, and today dozfacturers offer a multitude of RAID alternatives.

drives and SCSI host adapters.

Of course, systems managers, nies are offering software-only not academics, drove the move-RAID solutions that take advan-tage of another trend in hard disk ment toward RAID. The reasons storage: the ubiquitous SCSL Com-bine standard SCSL hard drives are simple: better performance, robust data security, improved data redundancy and fault-tolerwith good RAID software and you ant operation. By definition, RAID provides a significant alternative grown RAID system. to off-line tape backup systems world surveyed four evaluator

(see Scorecard, page 99).

BusLogie's Chantal Disk Array Software. The software, which supports Novell, Inc. NetWare v3.11 nervers, is due for a maj grade to Version 4.0 this me The new version will support Net-Ware 4.01 and will offer a number Chantal RAID Version 3.0 sup

orts RAID levels 0, 1 and 5 on Net are v3.t1 servers. RAID-0 pro que called "striping," which intericaves data across an array of rentional SCSI disks. All disks appear as a single unit. RAID-1 ides a real-time data backup automatically writes a second im-age of all disk data to a set of back-

RAID-5 provides high-data re indancy and fault tolerance

through striping and other tech-niques. Typically, RAID-5 is used when total reliability is at stake RAID-5 systems will automatically switch to a backup drive should the primary drive fail and will also empt to reconstruct the faulty drive on a spare backup unit.

The evaluators participating in

his survey included technical services firm, a petroleum compa-ny and a large bospital. All were using Chantal RAID in NetWare v3.11 environments for six months to two years and were supporting from 25 to 800 users.

in all, the evaluators gave Chan tal RAID an overall rating of 4.0, meaning that the software delivered better performance than ex-

The format for this survey was rested with the assistance of oward Rubin Associates and



evaluators had experienced at least ope bard disk fallure, with Chantal RAID recovering from the error as expected.
Hospital: "Version 4.0 is an im-

rovement. It never died on me or gave me a data error."

Petroleum company: "I would have expected problems with soft-ware RAID because it requires so-

University: "During the cours of setup, I pulled the plug man once or twice by accident. [The server) still came up. No user was aware of a problem."

Only the university evaluator had Chantal RAID and found perforning RAID-0 (using data stri

server. He said be was p with the results. Perform

Installation descriptions for users who evaluated Chantal Disk Array Software								
\	Hospital	University	Putroloom company	Auditog Sen				
Tabel 2400 merces	4	3	, 1	2				
Their bills	28G evres	46 BYTES	16G avres	12G syres				
Leagth of	6 MONTHS	1.5 YEARS	6 MONTHS	2 YEARS				
Colog belo	1 MONTH	,1 MONTH	PREPARING	PREPARING				
MM andre	ADAPTEC 1742	Apaptec 1742	ADAPTEC 1742	ADAPTEC 174				
SCSI drive	Micropous 2112	Furrsu, Microrous	Micropous 1924	SEAGATE				
THE TOTAL	5	5	0, 5	0, 5				
-	PATIENT ACCOUNTING, QUALITY ASSURANCE	DESKTOP APPLICATIONS	DESKTOP APPLICATIONS	DESKTOP, AUDIT APPLICATION				
litera en	800	180	150	50				

Evaluators say Chantal RAID

installation is simple but better documentation is needed

CONTINUED FROM PAGE 101.

sse there has been no bottleneck at the University: -"I did some Norton [Utilities] beachmarks and other throughput tests. tt's

faster when you have multiple users."

Auditing firm: "Under RAID-5, performs ropped. RAID-0 was 25% to 50% faster than ell's striping capability:

Technical support
The evaluators were very pleased with tech cal support, saying that calls were handled efcal support, saying that caus were insome sin-feiently and accurately. The hospital and uni-versity evaluators concurred that improve-ments in technical documentation would re-duce their needs for telephone technical sup-port. Nonetheless, they agreed that support

Hospital: The support technicians "always aswer questions concisely. But calling them

ace every two weeks does get tedious." Petroleum company: "I have high exq tions of (vendor) support, and they met those expectations. Very hetpful, and they undor-

University: "They were notably good at fol-lowing up, which puts them immediately into the top 20% of any wender I've dealt with."

None of the evaluators required more than a few hours to configure and install the Chantal RAID software. Any installation overhead was caused by locating the required parameter in-formation for hard disks and controllers; addie was uceded to format the hard disks med in the system. None of the evaluators con

sidered this to be part of the Chantal RAID instalbation, per se.

Hospital: "It was a reeze, Easier to install than Word for Windows." um company: Novell add-on products are, as a rule, easy to in-

stall and this was no different. It took four Hospital: "It took about 1½ hours. You

have to know EISA conrations, port addresses and the drive types you have. Actual installation once you know all of these parameters is t0 minutes. Auditing firm: "A piece of cake, Tops is 30 minutes. You could do it following the manual

step by step.

The hospital, university and auditing firm acquired Chantal RAID either through hardware bundling deals or through site licensing. Thus, the evaluators had no detailed measure of actual costs. The petroleum evaluator considered the software very inexpensive compared with proprietary RAID systems, as did the

Hospital: "We got it as a bundle with our torage] hardware. Petroleum company: "It's dirt cheap if you have the disks in-house stready. A packaged system still delivers proprietary software that may not decrease in price as the price of disk

III Supports RAID o, 1 and 5.

III SAID levels can be mixed on a single server.

Evaluators said Chantal RAID came with suffi-cient tools, atilities and

3012/g

VALUATION

diagnostic programs. The university, hospital and andit-ing firm evaluators wished for They said the current version takes too long to operate (ap-proximately 20 to 50 minutes). during which time users are

Hospital: "It went into off-line rebuild mode which took 50 minutes to complete. [Durin that time), my users were down, which I

that time, my users were used, "missa" thought was less than acceptable."

Petroleum company: "The configuration program is not as robust as desired. The menuing conforms with standard NetWare utilities."

Auditing firm: "They're sufficient. There are

to other command line utilities which we hardly ever use, but they're good for diagnostics if you need them."

Compatibility with industry-standard SCSI drives and controllers was the primary reapon for using Chantal RAID, according to the evaluators. They reported it was slightly more com patible than expected.

Hospital: "It didn't care what the disks

ly because of its compatibility with any SCSI frive and multiple SCSI adapters." University. If was fusty with the controllers, and you have to be careful with the configura-tion. But the really fantastic thing is that we can

Auditing firm: "With software RAID, ye

use anybody's drive and anybody's [8CSI]

Enhancements
The primary enhancement to be made to Chan-tal RAID Version 4.0 ts support for NetWare 4.0t. All evaluators were anticipating an even tust move to the new network operating system. The evaluators also expressed interest in reported improvements in rebuild times and better reporting and statistics to be de with Version 4.0 diagnostic programs.

The new Hot Swap feature will allow Chantal

RAID users to swap in a spare drive should an operating drive fail.

Petroleum company: "It does its job, and it does what RAID software is supposed to do." University: "They made it a little bit more id-lot-proof [in Version 3.0], which I didn't like. I want to have more control."

Auditing firm: "We'll use the Hot Swap in RAID-5. Otherwise, you have to shut the whole Reported and written by Computers

senior editor Garry Ray.

BusLogic responds

ardware product on the market today, herefore, it is our customers' strong accep-nce of software-based RAID that has posi-oned Chantal RAID as the market leader

does not provide use must somewhat a quired in an enterprise computing environ-ment. Compared with most RAID's solu-tions, Chantal RAID is an exceptional performer became it uses intelligent Stripe Job Combination. Aside from this technical trushe-off, there are no reasons not to choose RAID-6, especially if affordable fault toler-

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By Gilles Guignat

hen Steelcase, Inc. was looking for a third party to help it set up and manage a wide-area network that included 4,000 workstations, 26 operating systems and several networks, it didn't turn to the EDSs and Andersen Consultings of the world. Rather, the office furniture supplier went with a PC retailer-turned-service provider.

Steelcase's experience isn't unique, and comp nies like it have helped spur PC retailers' transition in the last five years from primarily PC hardware and software sellers to purveyors of setup, support and service for PCs, local-area networks and WANs. Players such as MicroAge, Inc. in Tempe, Ariz., JWP, Inc. in Rye Brook, N.Y., and Computerland

MANAGER DEMANDS

- TOP ISSUES IN PROVIDING NETWORK MANAGEMENT SERVICES:
- (Fault installion and room

PC retailers are

eressively moving into the ranks of

soup-to-nuts

sktop service and pport providers.

Their pitch? A keen

understanding of

and east-savings

tsourcers.

Corp. in Pleasanton, Calif., hope to capitalize on c porate customers' interest in desktop expertise.

Unlike the "big outsourcers," these companies tackle problems from the bottom np, an important point as LANs, WANs and client/server computing proliferate. Customers may have turned to these providers initially for large quantity purchases of PC hardware and software and returned when these wares needed to be linked together or with larger machines

For instance, Steelease, which is using MicroAge on its WAN project, has been a customer since 1985. It bought 2,000 PCs through the company in the last 12 months and plans on buying another 2,000 in the next 12 months.

Companies want specialists who can handle the soup-to-nuts care of what are small systems but big LAN and WAN issues investments. (A 1993 Gartner Group, Inc. study revealed that while a PC, including software, might cost a company \$5,000 initially, when you factor in costs for maintenance, network integration, design, installation, support and training over five years, that price tag jumps to \$40,000.)

Service business, page 106

Service business

CONTINUED FROM PAGE 105

Cost is also an issue. Large systems integrators have built their organizations on 30% to 35% gross margins, says Ed Drohan, a consultant who has compared service provider costs for the banking industry for 18 years. Providers that come from retail have margins more on the ce-

der of 20%. Slimmer margins translate into lower costs for users, says Joei Orr, a consultant and president of the Virtual Worlds Society.

A unified team
For some firms, a onestop contact point for the
myriad desktop issues
provides great relief.
"We wanted to get out
of this mode where we

"We wanted to get out of this mode where we are negoticating cach PC deal and pitting each vendor against oach othen," says Chuck Boll, lead information center spec-

information services group at Cummins, inc., a \$4 billion engine manufacturing company in Indianapolis. What Cusmins wanted was a partner that had deaktop experience to handle

PC- and LAV-level issues and that could at it to on several process and that could at it to on several process. The process are the process of the process o

bers on 2.009 Pc.: Resides taking the load off personnel, Cummins bocked to the service provides to end costs. Through the company, Cammins was able to segetiate a volume parachase agreement with Microsoft Corp. that saved is 260,000. Parthermore, in the Test month of its contract, Cummins consolidated on the contract, Cummins consolidated on the contract three Cummins purchasing elerits. "The old system was out of control," Boll says.

According to Orr. some companies turn to these FC and LAN experts for help in keeping up with the rapid rate of change on the deaktop, which can include swapping out machines every 12 to 18 months. "In-house bureaucracies can be inefficient," Orr says. Sometimes it takes an outsider to work around entreached javes and get things done fast-trenched javes and get things done fast-

Take Rumger Insurance Co. "Doing business with us was a long, agentzing

process," says Bustin
Cole, vice president of
marbeting at humger, a
malpractice insurance
firm in Orlando, Fla. It
took three weeks to
complete a sales cycle,
which encouppassed
the time from a salesperson's first client
contact to delivery of
the policy paperwork.
While the company
was in the fortunate position of hursing a lot of



Lotus Development Corp.'s Notes to streamline the process by developing a telesakes and telemarketing system, the IS department handed responsibility to a third-party retailer for the job. The service provider handled hardware and software purchasing and training, as well as implementing interfaces to the

company's IBM Application System/600.

The system, which included faxing forms directly into Rumger's system, was up and running in less than 10 days.

Cole says. The speed with which the project came together had a lot to do with the provider a 'outside' status.

Today, it takes only one hour for a salesperson to cement a deal and finish the paperwork, he says.

Steazy service providers?
The heat is on in the services segment of the market, but customers need to watch that they don't get hurned. Some providers may do anything to get a piece of the services market piet, which, according to international Data Corp. (IDC), is expected.

Not everybody's good at service

At minimum, you should look for the following expermervior revealer:

Procurement. A good company will help lower precurement costs by anisoning creating and hilling. The company can help new thee and society a precurement by providing one site purchasing appreciation to extend to be one curement by providing one site purchasing appeciation to extend a configuration and price quotes as well as nating electronic

Configuration, including and installation, the should be able to pet PCs configured any way you want, distributed to your deaths and installed.

Other configuration correlates often include LAMWAI better, in which the provider tools nevely configured configuration and LAMWAI better, it is which the provider tools nevely configured configuration on another with All before it in broad and shipport. Outs, more a should be able to equally specialized practical objections procedures, asset tagging and software lifecasting reporting.

one of congravant recommendations of the procedure of the configuration of the configuration

Matiental service. The provider should have a notwork throughout the U.8

Also important is a single point of contact for dispatching other service organization to do maintrane, midrange or other systems maintenance. This application is do maintrane, midrange or other systems maintenance. This application is a service of the service of the service.

Received support. The provider should be able to give comprehensive lectual call brieflage about sunerging technologies, new products and their hopect. It should be able to provide LANWAN recommendations and do product was the should be able to provide LANWAN recommendations and do product was the should be able to provide a major consultant remote the mostle supports.

Specialized services. Effects might include project management for pilot offorts, branch automation, internstional project and services support, sustomted to the service services and districted planning support.

ed to reach \$81 billion by 1967. Small systems integrators (a group that includes retailers) have high hopes: They mant 40% of their 1984 revenue to come from network services, an IDC study revealed.

network services, an IDC study revealed.
"You have to shop for quality when you choose," Orrsays.

Boll agrees. Whenever he is choosing a third party, which typically takes about

eight months of research, quality is high on his list. Boll has created a literal list of "bombs"— key provider sanks during the evaluation process that destroy any interest Boll may have in using them (see story below).

Guignat is a freb-lance writer and marketing specialist in Scottsdale, Aria.

Bombs away!

buck Boll an group at Cut have become at selecting providers.

- With the r talkers that is to be nervice swelling, Bo picking care become vita.

Roll land

tion center specialist in Cum mins' information services group, credita Toyota Motor Corp. and its quality methods with inspiring him to select only those prospective service providers that pass muster.

Cummins Inc. to dept. anoth to commins Inc. to dept. anoth to dept. anoth to dept. anoth to dept. anoth to dept. another to the following. Head the filled initial presentations. The warning sign is if the vice president of stark-tening is in charge of giving the talk: If, however, the company brings in a management team, preferably the people who will actually have die this account; that 'n a positive. Offer weak references. But I tells the story about going on-site at one reference company that at one reference company that.

SINCE POPES
For property only make of the
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that diagruntied reference endedu p flying to Commins to learn about its selection techniques. "Show inch of on-site quality. Boll gees on-site to any provider be is notious about. Does the nite adherve to 180 0000? Does it let the user load and run software from the site? is the manufacturing facility a clean-room environ ment? Will service incinde 24hour access to all epidpenent in

the right configuration?
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however, rests with the evaluator. Boll says it is imperative that
companies know what they want
so they don't contract for what
therefor?

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Introducing PC DOS 6.1

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Enhanced editor	' X :	1
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Computer Careers

Blazing network trails



By Joe Panepints

UNTIL RECENTLY, network management was the kind of ca-reer that information systems personnel stumbled upon when looking for something else, in fact, many of the folks managing networks today are pioneers of a sort — the first generation of is personnel to set sail for the great glass house and get tangled in coaxial cable

along the way. Recognizing that these voterans have presided over the many technological to formations that have led to the networked cavironments of today, Computers: asked a few of them about the changes they have seen and how they have managed to



RECENT CHALLENGE

Held's trial by fire and progression toward becoming network manager of a 24-node Novell, Inc. network began almost immediately after she was hired by Pleisher to write Cobol code for its mainframes. Six months after coming on board, the data processing manager resigned, leaving her alone at the controls. Held brought berself up to speed by

reading manuals and taking vendor She also says she feels fortunate that her company let her grow into each new nology — one transition was a move om Apple Computer, Inc. AppleTalk to

Novelt NetWare. Held found AppleTalk and NetWare similar to manage but says she felt the PCs that came into the building with the Novell network were much harder to configure. With the Macintoshes, setup is done in the system file but with PCs, there are .Bd files (initialization files) all over the place, she says.

Today, Held continues to do a little Co bol programming in a terminal emulation window on her PC while monitoring the NetWare network in another. Fleisher also recently expanded the network to another building via fiber-optic cable. The main way my life has changed in the number of users I support," she says.

When I started there were only four terminals, and we shared them. Today there are close to 50 devices on our network in two buildings." As a result, she spends more time doing help desk-type work. "The job I have now would be very dif-ficult to walk into because of the variety

of things I've picked up over time," she

RECENT CHALLENGE

When Baker was earning his b degree in computer science in the mid-1980s, he took just about all the computer-oriented classes offered — none of which had anything to do with network Since then be has taken a wide variety

Network manager at Brighem Young

RECENT CHALLENGE

Even though Everett's backgro trasts sharply with Held's, how be ended up riding shotgun on a 200-plus node No-vell network of IBM PCs, Digital Equipment Corp. VAXs, communi stabase servers is corily similar.

network manager so much as you fall in-to it," Everett says. "You get into a job and people say they need someone to

of training classes. And, because Jean-ette will be cutting over entirely to Net-Ware 3.1.1, Baker will soon begin Certi-fied NetWare Engineer (CNE) classes as

"Iwas the computer operator on a VAX 6000-class machine when the need for a network manager came up about five years ago." Baker says. Currently, he supports roughly 85 networked devices ranging from leftower Bild 8005 machines to brand-new intel Corp. 1485-based PCs. He is still swelfing to hexagon a ""-II. He is still working to become an "all-put pose PC and networking guy," he says. Baker got started in network manage

ment through the help of the con firm that installed the networks.

ge the network. They look are say You're it, then you take classes to learn the new technology while learning on the job."

Everett has a programming-orie degree, has taken graduate level ch in networking and has earned CNE sta

"One of the nice things about not our or the more trange mouth fetwork management is it's becoming a lot easier than if used to be," Everett says, pointing to management standards for me-worked devices such as Singule Network Management Protocol. He relies on a network management system from Network General Corp. called NetMon and starts troubleshooting only after it flags a pr jem. He can also use Network Genera Sniffer packet analyzer if he and Neth are stumped.

Panepisto is a free-lance writer in Ambersi.

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Learning the graphical way



PCs and Macintoshes, and information systems professionals must step up to the plate in delivor them - fast. But how can an average corporate developer hope in create in-house applications that compare with the slick, well-designed commercial mess to which users have be-

IS departments are wrestling with a slew of new graphical development environments that bear little similarity to the rocedural languages they grew up with Event-based application processing requires a fundamental shift, both technically and psychologically, that many pro-

codural programmers find difficult to "One of the biggest

adjustments to graphi nonprocedural cal tools is that you can't print out your whole m in linear fashsays Jim Pawcette, editor of the

Visual Basic Pro grammers Journal in Los Altos, Calif. "There is code hiding behind your forms that you can't see. Developers must take it on faith that these black boxes

will work as specified." By black boxes, Faw can't be tinkered with and whose code is hidden from view. These out-of-the-bex functions can be plugged into applications with minimal effort but cannot be changed or analyzed.

Automating events Event-driven programming autom

ation of events that can take place when an application is run. Procedural programming to more statio: The developer must write code for each step that has to take place, and programs execute in a linear fashion. Therein lies the major difference between the two worlds Pawcette says.

Ann Shukla, director of worldwide marketing at Uniface Corp., has watched many of her company's customers strug gle with these issues as they learn to use the Uniface event-driven fourth-genera-

tion language environment. The key to getting past the burdles, she says, is a saprehensive training program.

"We have found that it is very impor

ant to address all the fundamentals of the new computing landscape," Shukla says. "In addition to training in our apsays. 'm addition to training in our ap-plication development environment, we touch nn related topics, such as relation-al theory, object modeling and design, graphical screen designing and concep-tual data modeling."

Others have a slightly different approach. Tim Nelson, chief scientist at SHL Systembouse, Inc., a systems inte-grator specializing in application devel-opment issues, for instance, finds that inducing a language-oriented workbeuch, such as MicroFocus, Inc.'s Micro-Focus Cobol Workbench, eases the transition. This development environment integrates a familiar mainframe syntax within the graphical operating system workstations and PCs, making it must easier for programmers to feel comfor

Because the same set of tools can be used in the same fashion on diffe platforms, companies can make a smooth transition off of the mainframe to a variety of PC and Unix environs without becoming overwhelmed by the complexities of those environments, Nelson says. With this comfort comes the confidence to exploit the workstation en vironment in new ways.

Cobol migration
There are also ways to encapsulate existing Cobol procedures into Dynamic
Link Libraries using the MicroFocus Coboth tools. Programmers migrating Cobol tools. Programmers migrating Cobo applications to a windowing environment may find them helpful because they don't have to start from scratch. The tools also give them a some of the black box concept, using precedures they have

> recommends that pro soft Corp.'s Visual B

and its many add-on too "For a Cobol progra mer moving into Win-dows, these tools are a godsend, Pawcett says. "Without them, you would have to master the W a very difficult task."

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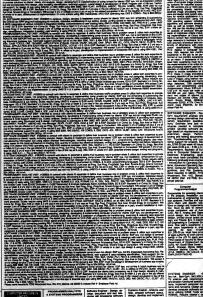
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Marketplace

The scoop on imaging VARs

By Joe Panepinto

If you're in the market for a document imaging system, you may end up dealing with a value-added Anabeim Calif. savs er (VAR). Imaging vendors use VARs more and more often to sell and support their products, especially system components or smaller turnkey systems that list for less than \$500,000.

Unfortunately, the markup on such services can be as steep as 30% to 40%. So what can you expect to pay?

ting the price of a typical document imaging system is nearly impossible because most solutions include a range of equipment. For instance, scanners run from \$2,000 to more than \$10,000, depending on processing speed. Optical storage subsyss can been sable or write-once read-many, stand-alone or jukebox and range from roughly \$5,000 to more than \$200,000. Monitors run from around \$2,000 to nearly

Software is generally the cheapest - you can get some PC-based imaging software for less than \$100 per seat - but the average is

\$500 to \$1,000. How much you allocate for each niece depends on your peeds, but me believe there are general

Gillette, president of CEG Technolories, Inc., a systems integ

the price of a VAR-installed document imaging system should 75% software and serentages of imaging come from

the way it is implemented rather than the technology itself, soft

ware and services should predominate. On the other hand, David Rose, ent imaging product marketing manager at Sigma Designs

a document imaging display ven-der that sells largely through VARs, says just the opposite users should pay roughly 75% for hardware and 25% for software As expected, the ratio of hardware to software and services in

real-life contracts falls som where in between. The city of Houston's personnel department, for example, installed a fairly large (\$500,000 to \$1 million) document imaging system, the cost of which was 62% for hardware and The department started from

cratch. The employment records of 21,000 current and ees (more than 4 mil in hard copy on floorto-celling racks and seed by hand ofiche and go di-

rectly to a local-area network-based docu-ment imaging system with optical storage. was very specific ties of the hard

ware, the LAN and the software, it detailed what the department ex-pected from the VARs in terms of training and installation time Whether you're going through

VARs or anyone else, I recommend you make them show you a whole tem in actual operation," says Darrell Malone, senior perso trator. "There are vendors and VARs out there that like to sell you things that don't exist or don't work."

Paneplato is a free-lance writer in Am-

PIISH FOR THE FXTRAS

nd from an imaging VAR. These include Requirements definition

There are at least two dozen services that a buyer show VARs should help define the proi cument imaging system, including the following

·Return on investment req

feet networks as well as work and paper flow. VARs should provide potential clients with:

Alternative organizational structures. An analysis of the impact of imaging on all of the above

storage capacities and retrieval rates. The VAR should also clearly spell out each vendor's as

A final proposal from a VAR should include not only the sys-tem specifications and cost, but also the manner in which the change from existing document practices to the new

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Systems software struggles

restors must be dizzy by now. Many mainframe systems flware stocks have gone up and down like a roller conster-ring the past several months — most notably Legent up. (LGNY) and BMC Software, inc. (BMCS).

Analysts said the sector presents several excellent in-stment opportunities, but they were less than unanimous

ventment opportunition, but they were iese than unanimous on which companies have the best properts and when rule unanimous on which companies have the best properts and when rule unanimous would move permanently turn upward. Legent, which filled the quarterly report last veck (see slory sent page), has enfired the soot. Legent shares such move than 10 points in one day last insome them the more pay previewed list earnings. The company closed Thursday at previewed list earnings. The company closed Thursday at less than had foll its Phenary 3D-exc. high, Earlier in the years, Bitl. See see thought and the part of the companies of the property of the companies of the property of the companies of the property of

Some observers pin the blame squarely on the rumored densise of the mainframe. However, Wall Street analysis said recent evidence suggests the software market is quite solid. The analysis pointed out that a number of systems and utilities software vendors recorded excellent results in

and utilities software vendors recorded excesses resuns to the most record quarter. For example, BMC's 8.65 per share earnings easily eclipsed analysis expectations, Boole & Babbage, Inc. (BOOJ), scored a 70% increase in set income, and Compa-ware Corp. (CPWR), 4th Dimension Software, Inc. (DDDDF) and Plattimum Technology, Inc. (PLAT) also fared

For the most part, stocks in the sector have responded staggishly, indicating that investors remain somewhat skeptical However, such pervasive success argues that the mainframe software market is still vital, according to Tes ence Quin, managing director at Furman-Selz, Inc. "Two quarters ago, people would have said it's dead," Quinn said "But BMC's and Legent's shortfalls were due to execution

problems not sector problems."
Legent likely has further sales force and product lin-transitions to undergo before its issues turn around, and

Among other stocks, SoundView Financial Group analysumes Mendelson recommended BMC and Platinum Tech nology as good short-term opportunities, while Compuraries provides strong long-term prospects. Compuware's shares were dragged down earlier in the year when Legent's prob-

erre uragges down carner is the year when Legent a pro-ems began, but they have largely recovered.

Quinn recommended purchase of Computer Associates international, Inc. (CA) and BMC, while Mendelson rated

- Derek Stater

	A			les !	Committee	Contraction					374 (-	-
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App. 6 Section of Per-



Computer Industry

Briefs

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of \$1.4 billion. Last the Irvine, Calif., co arned \$68.5 million or

me period tast year. Lo-ut said the dip in perfor-ance for the period ended no 30 stemmed from a

Midrange getting hotter for CA

ISLANDIA. S.T

Computer Associates International, Inc.'s impressive first-quarter results were, as usual, buoyed by an increase in its host systems software sales. But although CA's mainframe revenue grow 11% to \$331 mil-lion for the period ended June 30, systems software revenue as a percentage of over all sales shrank to 78%, down from 81% of total sales in the year-earlier quarter.

The changes, though minor, may indicate that CA's attempts to make inroads in-to Unix, deaktop and distributed software markets are beginning to have an impact. For example, sales of CA's midrange prod-nets, including its IBM Application Sys-tem/600-based CA-PRMS manufacturing cache, estabulted 131% last quarter to \$37

Because CA has filled a niche with CA-Because CA bas filled a niche with CA-Unicenter by offering what many analysis consider the most comprehensive systems management product available for multi-vendor distributed operating environ-ments, the company could be well on its way to making midrange product sales 25% of total revenue within the next five to 10 years. "CA is making out better than anyone else in that business," said Charles E. Phillips, a financial analyst at Kidder, Peahade &Co in New York

Maybe midrange Even though midrange sales contributed a

more % of overall sales for the first quar-tor, analysis said they believe revenue could triple if shipments of Unix and networked and desktop versions of CA's Unicenter systems management package begin making an impact during the next six

For example, CA has delivered 4,000 cop ies of its CA-Unicenter for Unix package to

ware, which is being bundled into HP 9000 nes as part of a oneel 800 Unix mad year promotional push, could generate re-coue approaching \$100 million during the next few quarters at \$20,000 to \$25,000 etc. use, according to Terence Quinn, a menaging director at Furman-Selz, Inc. in

Noncommittal users However, because CA-Unicen-ter for Unix is being offered an

the HP boxes with a 120-day free license, not all users will necessarily commit to the package, cautioned Timothy R. McCollum, a financial ana-lyst at Dean Witter Reynolds in New York.

CA executives said it is still too early to forecast what kind of impact the Unicenter or-ders will have on the company's bottom line Outno said CA will have a

better grasp of Unicenter revenue potential nace it begins shipping versions to Sun Mistems, Inc., Novell, Inc. and IBM in December for their and AIX and OS/2 noftware

Not that CA's mainfrar revenue is expected to shrivel up any time soon. Quinn forecasted that CA's systems software sales should continue to experi-ence "low double-digit growth for the next

Analysis said they believe CA's flexible oftware licensing programs, which the company rolled out in April 1992, have had vorable impact on the vendor's reve-"The change in the pricing strategy allows CA to do a better job of servicing their

ware," said Andrew C. Brosseau, a prin pal at Cowen & Co. in Boston.

3 up. 1 down

The following is a

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see: \$331 mill

n (g% Incre

proved the company's relationships with

ly have preyed on perceives problems between CA and it installed base, most notabl Legent Corp., which last quar

ter nuffered a dramatic dip in earnings (see story at left). The list of customers who "are list of customers who had been angry with CA is gradually getting shorter as CA's keening structure has helped improve customer re-lations," Quinn said.

The bulk of mainframe reve one reportedly comes from utilities. Brossess said as much as 50% of the most re-

a 9% increase to \$38 million for the quarter CA's strategy of delivering desktop ver sions of its systems management too should help buttress future sales, Bros

seem east.

Some analysts were less enthused about CA's desktop revenue potential compared with its future with Unit products. "CA will pick their niches (for desktop products), but we don't envision them going up against Lotus or Microsoft, "Quinn said.

Cognos to target client/server

PURLINGTON, MASS

Cognos, Inc., purveyor of the PowerH fourth generation language (4GL) and other tools, is pushing to reinvent the company later this year, when it plans to unwrap a new generation of products at its fall user conference. However, it will have to dem-

conterence. However, it will have to dem-contrate better timing and overcome a ten-dency to undermarket itself, analysts said. Copies will be targeting the client server mark with tools for creating dis-tributed applications that will ship in the first half of nost year, officials said. The company neeks to capitalize as the need for more robust tools and stronger lan-

different product name to complement the new se-ries, which will include a full PC version and graphi-cal developer's tool. Cog-nos will also announce multiple relational database management system support for the Unix ver-

8 and approximately \$5 lion for fiscal 1992 —

est quarter of 1994. Net inc

coming Chief Operating Officer Ros ibinini (formerly vice president of re-search and development) earlier this year spearheaded a no

Zamhinin seemed aware of these problems, soting the company needs to make "serious changes" to avoid its problems in the Unix market and to effec-



meet my personal hero, jonatha Frakes, better known as Commander Riker, second in command of the Starship Enterprise on Stor Trek. He is the executive commander of a is the executive commander or a spaceship, and be has to deal with a lot of the same things I have to deal with at my job. We are both battling with the competition, and we both need to manage our people. Perhaps these similar-



ities can allo all of us to look at what we do in a less serious

Boole & Babbage, Inc.



Russian author, would be one of my personal heroes. He wrote a variety of fictional novels on life's challenges and personal relationships that earned him notoriety in both Russia and notonety in both Russia and throughout the world. He wrote such novels as Pin, Pole Fire and Speak Memory (autobiography).



Mike Walsh Senior vice president Comdisco Systems, Inc., o business unit of

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